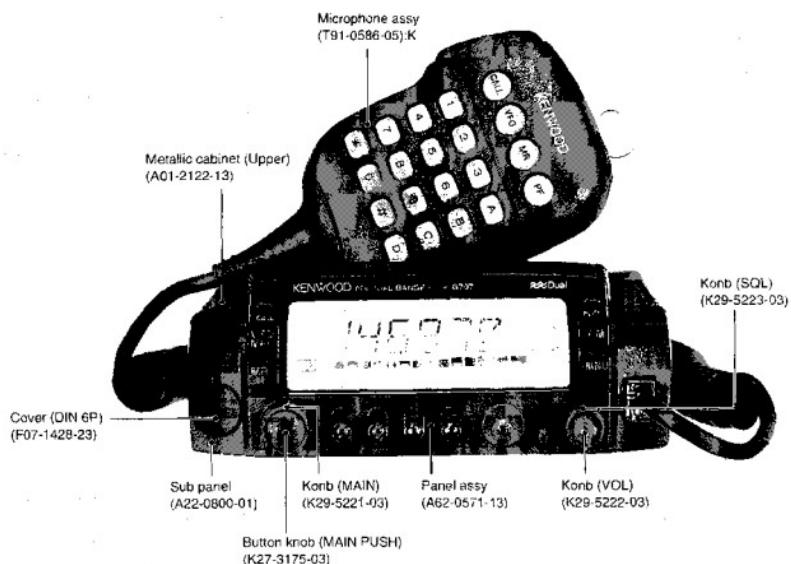


# TM-G707A/E

## SERVICE MANUAL

KENWOOD

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B51-8418-00(B) 834**Photo is K Type**


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# TM-G707A/E

## CIRCUIT DESCRIPTION

### Outline

This device is a dual-band 144/430MHz FM car transceiver planned and designed for amateur radio communications and has the following features.

1. The display backlighting uses ultra-high brightness yellow LEDs. The display is a 13-segment positive type.
2. The main unit is 40x140 mm. The detachable operation panel is 51.5x105 mm.
3. 180 channels in memory.
4. The chassis is diecast aluminum with the heat radiation fins formed into one piece with the chassis.
5. Built-in CTCSS functions with 38 different selectable tones.
6. Data terminal having 1200 bps/9600 bps packet communication and computer interface.
7. Audio announce mode that announces the display frequency, name of the key pressed, etc. (when VS-3 option installed)

### List of Destinations

Model	Guarantee frequency range (MHz)		Output power (W)	
	144	430	144	430
TM-G707A	K	144~148 <sup>1</sup>	438~450	50 <sup>2</sup>
	M2		430~440	
	M4			35 <sup>2</sup>
TM-G707E	E	144~146	430~440	50
	E3			35

<sup>1</sup> Taiwan : 144 ~ 146 MHz

<sup>2</sup> Taiwan : 25 W (both bands)

### Accessories

Parts name	Parts No.	Q'ty	Destination
Warranty card	-	1	K,E,E3
Instruction manual	-	-	all
DC cord	E30-2111-15	1	all
Fuse (15A)	F61-0017-05	1	all
Microphone	T91-0396-05	1	M2,M4,E,E3
Microphone (DTMF)	T91-0586-05	1	K
Mobile bracket	J29-0832-13	1	all
Screw set	N99-0331-05	1	M2,M4,E,E3
Screw set	N99-0382-05	1	K
Microphone hanger	J19-1526-04	1	K

### Units for Each Model and Destination

Model	TX-RX UNIT (A,B,C,D)		LCD ASSY
	K	X57-5570-11	
TM-G707A	M2	X57-5570-22	B38-0797-XX
	M4	X57-5570-24	
TM-G707E	E	X57-5572-71	
	E3		

## CIRCUIT DESCRIPTION

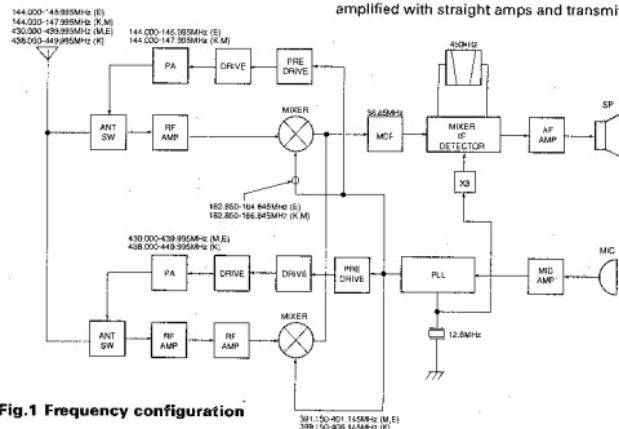
### Frequency configuration

Since the TM-G707A/E uses the same PLL and IF for both the VHF and UHF band, these sections are used switching bands.

The 144MHz band reception system is mixed down with the 1st local frequency 182.850 MHz to 184.845 MHz (E), 182.850 MHz to 186.845 MHz (K, M) to make the 1st intermediate frequency of 38.85 MHz. This frequency is further mixed down with the 2nd local frequency of 38.4 MHz to obtain the 2nd intermediate frequency of 450 kHz.

The 430MHz band reception system is mixed down with the 1st local frequency 391.150 MHz to 401.145 MHz (M, E), 399.150 MHz to 406.145 MHz (K) to make the 1st intermediate frequency of 38.85MHz. This is mixed down with the 2nd local frequency of 38.4 MHz to obtain the 2nd intermediate frequency of 450 kHz. Thus, the reception systems form a double conversion system with two intermediate frequencies.

The transmission system uses direct oscillation for both the 144MHz and the 430MHz band and is made up of a PLL circuit formed through direct frequency division. Signals are amplified with straight amps and transmitted.



**Fig.1 Frequency configuration**

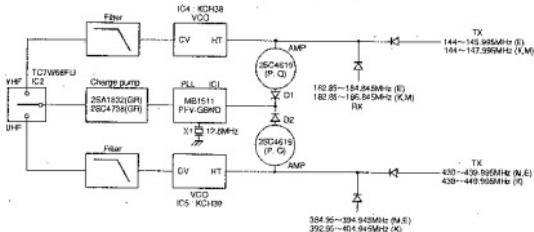
### PLL synthesizer section

The VCO section is in the shielding case and the PLL section is on the TX-RX board. The 12.8MHz reference oscillator (X1) is oscillated with the PLL IC (IC1). The 5kHz and 6.25kHz reference frequencies are obtained by frequency dividing this signal.

5kHz, 10kHz, 15kHz, 20kHz, 6.25kHz, 12.5kHz, 25kHz, and 50kHz step PLL synthesizers are configured through phase comparison with the reference frequencies obtained by frequency dividing HT. The VHF VCO PLL is configured with one PLL IC by using a switch. For VHF, IC2 (analog switch) is

switched to the VHF side and D1 comes on. For UHF, IC2 is switched to the UHF side and D2 comes on. In this way, the two groups are formed. For VHF-band reception, oscillation is 182.85 to 184.845MHz (E), 182.85 to 186.845MHz (K, M) and for transmission, oscillation is 144.00 to 145.995MHz (E), 144.00 to 147.995MHz (K, M).

For UHF band reception, oscillation is 384.95 to 394.945MHz (M, E), 392.95 to 404.945MHz (K) and for transmission, oscillation is 430 to 439.995MHz (M, E), 438.00 to 449.995MHz (K).



**Fig.2 PLL synthesizer circuit**

## CIRCUIT DESCRIPTION

**Unlock Detect Circuit**

The signal whose phase has been compared from the PLL IC (IC1) is output, goes through the waveform circuit, and is input to the microprocessor. If the level after waveforming is low, the microprocessor judges this to be the unlock signal

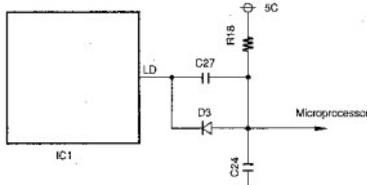


Fig.3 Unlock detect circuit

**Transmit Circuit****●Outline**

The transmitter directly oscillates the target frequency with the dedicated 144MHz band and 430MHz band VCO and amplifies to the target power. Frequency modulation is applied directly with a variable-capacity diode.

**●Modulation circuit**

In the control unit, the audio signals are amplified and limited and passed through a splatter filter, then mixed with subtones from the microprocessor, and directly frequency modulated by a VCO (144MHz band: IC4; 430MHz band: IC5) with a variable-capacity diode.

**●Younger stage circuit**

The signals from the PLL unit are input to the drive circuit (144MHz band: Q16, Q18, 430MHz band: Q15, Q17, Q19). The drive amps carry out stable amplification over a broad band without regulation and can obtain adequate output to drive the final module.

and does not transmit and does not send the transmission signals to the shift registers. The microprocessor also generates the beep to announce the unlocking. Unlocking is announced in the same manner for reception too.

**●APC circuit**

The automatic transmission output control circuit (APC) uses a differential amplifier circuit (IC6) to compare and amplify the reference voltage that forms the CPU PWM output and the DC voltage that detects part of the transmission power with diodes (VHF: D20 and D23; UHF: D19 and D21) and for that output controls the DB voltage with a preamp (Q21) and control transistor (Q20) and holds the transmission output constant.

Six sets of PWM data, high-, medium-, and low-power each for VHF and UHF are stored into EEPROM memory (IC511) and for each power condition, the data is extracted from the EEPROM to control the power.

The PWM output from the CPU is used as the BPF tuning voltage for reception.

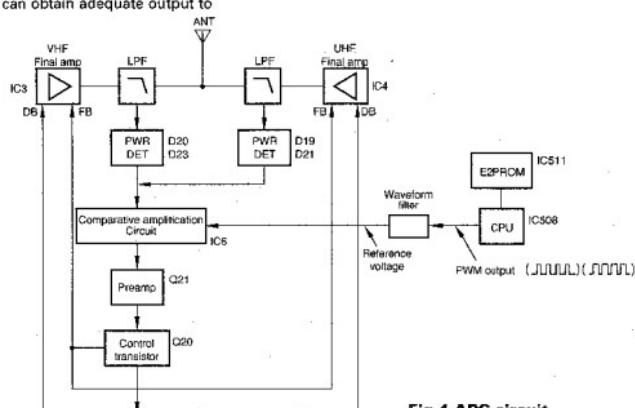


Fig.4 APC circuit

## CIRCUIT DESCRIPTION

### Reception Circuit

#### ●144MHz Band

After the 144MHz antenna input signals pass through the final section antenna switching diode, they go through the front section tuning coil for matching and tuning are amplified with the GaAs field effect transistor. The unwanted signal is eliminated with a band pass filter made up of a 2-stage variable-capacity diode tuning and the result goes to the first mixer. The variable-capacity tuning comprises three stages. The tuning voltage is supplied from the microcomputer. For the tuning voltage, the PWM used for APC during transmission is switched to use for tuning for reception. In the first mixer, the signals are mixed with the first local signal from the PLL and converted to the first intermediate frequency signal of 38.85MHz, then the unwanted proximate signal is eliminated in the 2-stage MCF.

The first intermediate frequency signal is amplified and input to the FM IC (IC8). This intermediate frequency signal is mixed with the second local oscillator frequency of 38.4MHz to make the second intermediate frequency of 450kHz and

after the unwanted proximate signal is eliminated with an FM ceramic filter. The signal is input to IC8 again. Here, second intermediate frequency is amplified and detection are carried out to form the audio signal. From the IF (38.85 MHz) stage onward, the circuits are shared with the 430MHz band and switched for each band.

#### ●430MHz Band

After the 430MHz antenna input signals pass through the final section antenna switching diode, they go through the front section matching coil, are amplified with the GaAs field effect transistor, go through a divider, go through a SAW filter to eliminate the unwanted signal and the result is input to the first mixer. Here, the signals are mixed with the first local signal from the PLL and converted to the first intermediate frequency signal of 38.85MHz, from the IF stage onward, the circuits are shared with the VHF reception circuit.

Item	Rating
Center Frequency	38.85MHz
Pass band width	±7.5kHz or more at 3dB
Attenuation band width	±25kHz or less at 36dB ±45kHz or less at 58dB
Guaranteed attenuation	80dB or more within ±1MHz (Spurious: 40dB or more within ±1MHz)
Ripple	1dB or less
Insertion loss	3dB or less
Termination impedance	550Ω ±10%, 2.5pF ±0.5pF

MCF (L71-0481-05)(TX-RX Unit XF1)

Item	Rating
Nominal center frequency	450kHz
6dB band width	±7.5kHz or more (from 450kHz)
50dB band width	±15.0kHz or more (from 450kHz)
Ripple	3dB or less (within 450±5kHz)
Insertion loss	6dB or less (at minimum lost point)
Guaranteed attenuation	35dB or more (within 450±100kHz)
I/O matching terminating impedance	

Ceramic filter (L72-0931-05)(TX-RX Unit CF1)

### S Meter Circuit

S meter output voltage from the FM IC (IC8) is connected to the control unit and A/D converted by the CPU to drive the LCD bar meter.

### Squelch Circuit

The squelch control angle is read into the panel section microprocessor and converted from analog to 6-bit digital. For adjustment mode, on the main unit side, the threshold level signal is received and the SQ voltage at that time are stored into the microprocessor. The microprocessor calculates the squelch release voltage using this voltage as the reference. This voltage and the panel section squelch control voltage are compared and the squelch switched ON and OFF.

### Shift Register Circuits

The TX-RX units have a shift register (IC7) and carry out the control of the right figure.

Pin No.	Name	Function
1	E	GND
2	DTS	Serial data input
3	CK	Clock
4	8R SW	U/V RX Power SW
5	UTX SW	UHF TX Power SW
6	VTX SW	VHF TX Power SW
7	8CU SW	UHF Power SW
8	8CV SW	VHF Power SW
9	14R SW	VHF RX SW
10	VAIP SW	VHF AIP SW
11	UAIP SW	UHF AIP SW
12	80R SW	
13	43R SW	UHF Power SW
14	36R SW	
15	USHIFT	UHF VCO Shift SW
16	SC	VDD

# TM-G707A/E

## CIRCUIT DESCRIPTION

### AF Signal System

After the RD detection signal from the FM IC (IC8) enters the base band (IC506), it is combined with the VO signal from the audio synthesis unit and the beep and DTMF signals from the CPU and goes into the electronic control. The electronic control has two channels, one of which is used for the internal speaker (AO1) and the other of which is used for the speaker mic (AO0). The audio signals whose levels have been adjusted by the electronic control pass through the mute circuit, are amplified by the power amp (IC207), and are output to the built-in speaker and the speaker mic.

(K type has no speaker microphone circuit)

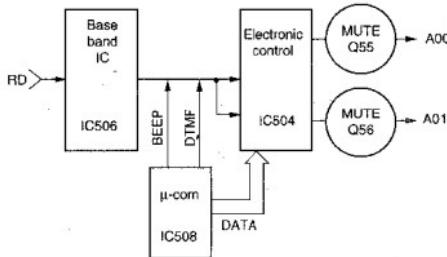


Fig. 5 AF Block Diagram

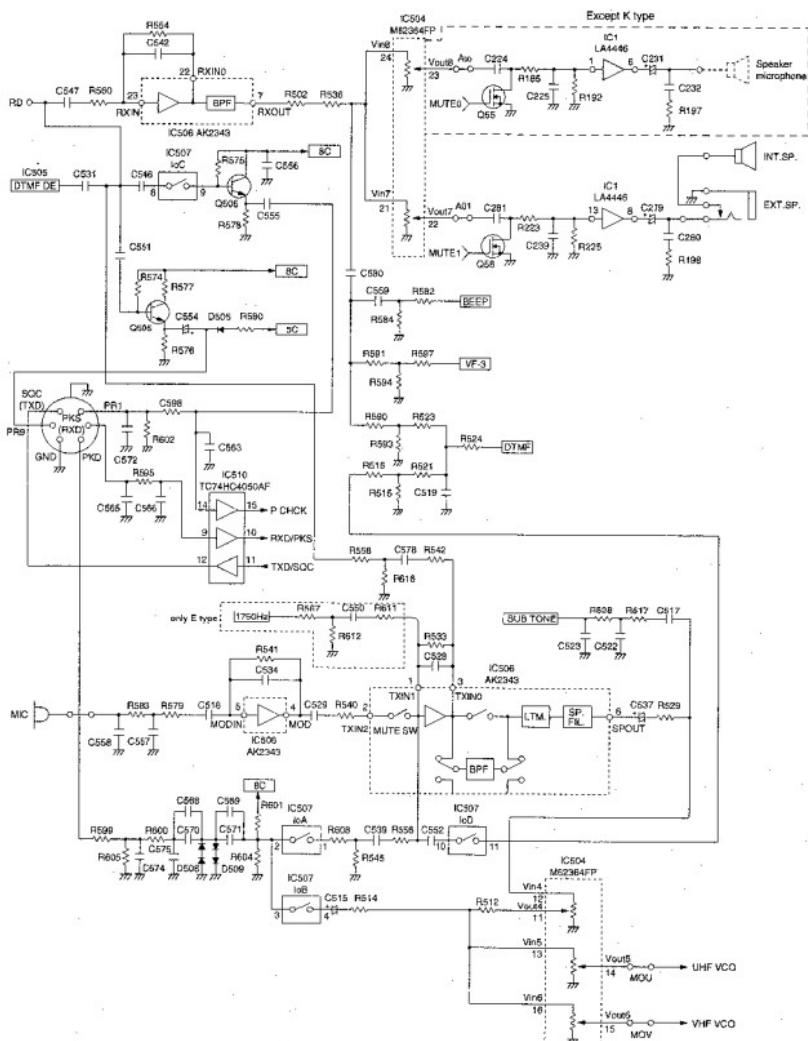
### Mic Amp Circuit (Refer to Fig.6)

The audio signals from the microphone are impedance matched and enter AK2343 (IC506). AK2343 comprises a 2-stage amp, mute circuit, band pass filter circuit, limiter circuit, and splatter filter circuit. It provides the audio signal amplification and preemphasis characteristic. During data transmission from the DATA terminal, the IC507 mute switch

is switched off to mute audio signals from the mic. The level for the mic amp output is set with the electronic control (IC504). The modulation circuits are directly connected with the VCO variable-capacity diode for the 144MHz band and the VCO variable-capacity diode for the 430MHz band and apply frequency modulation.

TM-G707A/E

## CIRCUIT DESCRIPTION



**Fig. 6 Transceiver audio signal processor circuit**

# TM-G707A/E

## CIRCUIT DESCRIPTION

### Digital Control Circuit (Refer to Fig.6)

The digital control section controls each function with one microprocessor (IC508) and comprises the subtone signal, DTMF encode and DTMF decode circuit (IC505), the electronic control circuit (IC504), the analog signal select switch (IC507), and the base band circuit (IC506). The reset and backup circuits, mic amp circuit, and microphone key input circuit are also included in the control unit.

### Data Communications Between Panel and Control Unit

Figure 7 shows the control unit data communication circuits. SI is the serial data in and SO is the serial data out. There are Buffer amplifiers for protecting the microprocessor board.

Data communication is asynchronous, with a communications speed of 19200 bps. The control unit side microprocessor checks the connection once every 0.5 second and if the connection is NG twice in a row, in other words if the panel section is removed for more than one second, the power is cut off.

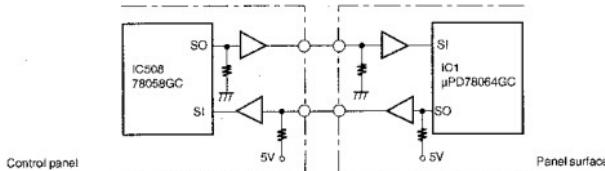


Fig. 7 Circuit for Data Communications Between Panel and Control Unit

### Speaker Switching Circuit (Refer to Fig.6)

Each of the AF signals, AO0 and AO1, is input to one of the two independent power amps (IC1: LA4446). Switching between the internal speaker and external speaker is controlled by the electronic control (IC504) and the mute circuit of Q55 and Q56.

### Tone Output Circuit (Refer to Fig.6)

The tone signals (38 waves within 67.0 to 250.3Hz) are output from ANO0 of the microprocessor (IC508) analog output port.

### ●DTMF decode signals

The DTMF signals from a mic with DTMF (M2, E, E3 : optional), go into the DTMF decoder IC (IC505 : LC73881M). When a valid tone pair is detected, STD of the DTMF decoder IC goes high. This is input to the P56 port of the microprocessor (IC508), the serial clock is output from P54 of the microprocessor to the DTMF decoder IC, and the serial data is sent to the P55 port of the microprocessor.

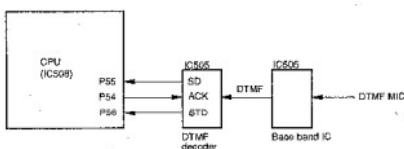


Fig.8 DTMF decode circuit

## CIRCUIT DESCRIPTION

### Reset and Backup Circuits

When power is supplied to the set, the reset circuit generates a delay in the reset IC (IC503: PST9130NR) and the delay signal is input to the reset terminal of the main unit microprocessor to carry out a power ON reset. When the power voltage drops, the voltage is detected and the reset signal is generated.

The reset switch circuit resets the main unit microprocessor when the reset switch (S501) is pressed. The microcomputer checks the RST port level after reset is performed. If the switch is released within 1 second (when RST port has set to LOW level) at this time, then operation is the same as VFO reset (VFO+POWER ON). However, if the switch is pressed for longer than 1 second (RST port has set to HIGH level for more than 1 second), then operation is the same as ALL reset (MR+POWER ON). The RST port is normally low. The backup circuit detects any voltage drop in the power supply voltage 13.8V line and sets B CHCK of the microprocessor high, causing the microprocessor to send the backup data to the EEPROM (IC511) and go into STOP mode to reduce power consumption.

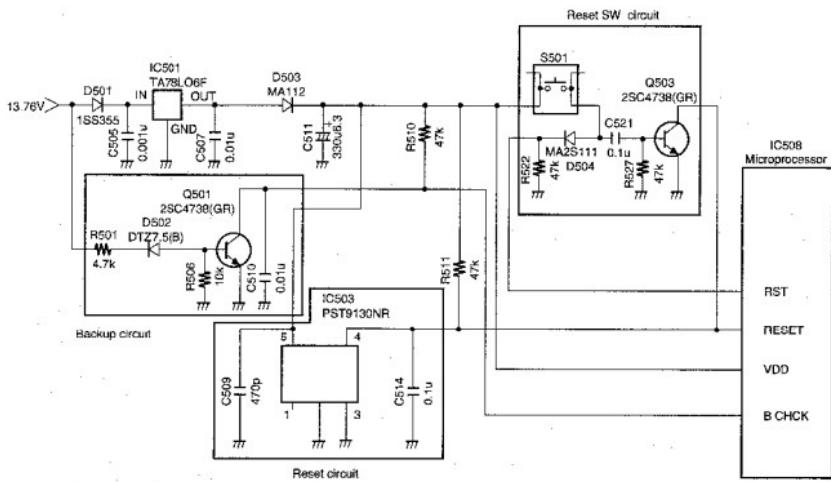


Fig.9 Reset backup circuit

# TM-G707A/E

## CIRCUIT DESCRIPTION

### Microphone Key Input

The microphone UP/DOWN and function keys are connected to the microprocessor analog input. The voltage when a key is ON operates the corresponding function. Also, the key input interrupt circuit is for switching the power ON/OFF with the microphone. When the DOWN, MR, and PF keys

are pressed, an interrupt is generated and the microprocessor is awoken from stop mode. However, with the TM-G707A/E, the power ON/OFF switch function can be registered to the PF key on the microphone.

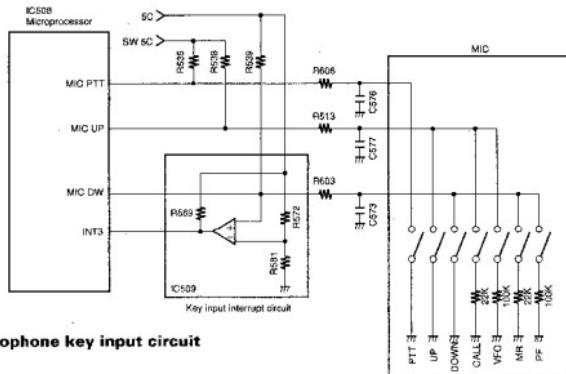


Fig.10 Microphone key input circuit

### Data Terminal and Peripheral Circuits (Refer to Fig.6)

J501 (data terminal) is the data communications terminal on the front. It handles transmission control, data input/output, and squelch signals.

There are two data communications modes: 9600bps mode and 1200bps mode. 9600bps mode communications are GMSK and G3RUH packet communications. Unlike with 1200bps AFSK, with this type of high-speed modulation, frequency modulation is carried out after the digital base band signals (rectangular wave) are passed through a band limiting filter. For 9600bps GMSK for example, compared to 4800Hz signals (nearly sine wave signals passed through a filter), these signals have a hissing sound like digital modulation when listened to by ear. Different types of modulation, such as GMSK and G3RUH, are distinguished by the type of band limiting filter.

### ●Transmission signals

Transmission modulation signals enter from PKD of the data terminals (J501). The path to the modulation depends on whether communications are 1200bps or 9600bps mode.

For 1200bps mode, the transmission modulation signals pass through I<sub>O</sub>A of the analog switch (IC507) and are input to IC506 TX IN1 (Pin 1). The signals pass through the audio amp within AK2343, are switched by the electronic control, and are input to the VCO.

Pin No.	Pin name	Specification		
		bps switching	1200bps	9600bps
1	PKD	Modulation input	40mVp-p	2Vp-p
		Frequency shift	3±0.5kHz	2.2±0.5kHz
4	PR9	Output level	500mVp-p/10kΩ	
		Always output during reception		
5	PR1	Output level	500mVp-p/10kΩ	
		Not output when squelch off		

### DATA terminal input/output level

For 9600bps mode, the transmission modulation signals pass through I<sub>O</sub>B of IC507, are switched by the electronic control, and are input to the VCO.

The frequency shift depends on the input signal level, so there is an amplitude limiting circuit (D508, 509) to hold the signal below 4 Vp-p to avoid extreme shifts.

Thanks to this circuit, the PKD signal does not go above 4 Vp-p and the frequency shift does not fluctuate extremely.

## CIRCUIT DESCRIPTION

### ● Reception signals

PR9 is the 9600bps data communications reception output. It outputs the FM detection circuit output (RD signals) through a buffer amp (Q505 : 2SC4738 (GRI)). These signals are always output whether the squelch is open or closed.

PR1 is the 1200bps data communications reception output. It outputs the FM detection circuit output (RDT signals) through a buffer amp (Q506 : 2SC4738 (GRI)). Output is controlled with the analog switch (Ic0 of IC507) according to whether squelch is open or closed.

### ● Squelch signal output circuit (Refer to Fig.6)

The squelch circuits is input to the TNC to prevents conflicts from occurring between simultaneous receive mode and transmit mode traffic during packet communications. (only during 1200bps) The signal is output from Pin 12 of IC510 to the data terminal. The logic is as shown in the Table below.

SQC terminal output	L:SQ CLOSE
(J 501 Pin 6)	H:SQ BUSY

## Panel Section (LCD ASSY: B38-0797-35)

The panel section controls serial communications with the main unit control section, the key input circuit, the display circuit, and the dimmer circuit through the microprocessor (IC1).

### ● Serial communications circuit

A buffer amp is inserted in order to protect the microprocessor ports.

### ● Key, Volume input circuit

Circuits to operate the panel section keys are connected to each microprocessor port. The PSW key is pulled down and the other keys are pulled up with software within the microprocessor. Rotary encoder operating circuits are connected directly to the microprocessor. The control divides the power supply voltage, reads the A/D port of the microprocessor, and transfers that data to the main unit.

### ● Display circuit

The display is a 13-segment positive type. The segments are controlled directly by drivers in the microprocessor.

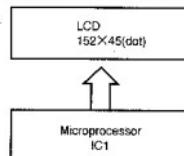


Fig.11 Display circuit

### ● Dimmer circuit

The dimmer circuit switches the lamp brightness to one of four levels or OFF. (See table) the current flowing to the LEDs is varied by selecting resistors from R36 to R41.

R42 is for adjusting for variation in the brightness of the LED. R42 is adjusted at the factory so that the brightness at the center of the LED is  $24 \pm 5 \text{ cd/m}^2$ .

Dimmer level	P100	P101	P102	P103
1	H	L	L	L
2	L	H	L	L
3	L	L	H	L
4	L	L	L	H
OFF	L	L	L	L

### Port logic

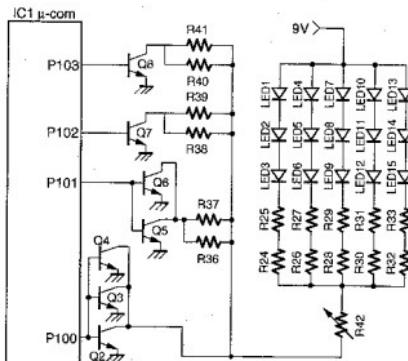


Fig.12 Dimmer circuit

# TM-G707A/E

## ACCESSORY MICROPHONE T91-0586-05 : K type (MC-53DM)

### EXTERNAL VIEW



### PARTS LIST

Ref. No.	Address	New Parts	Parts No.	Description
			ADZ-1982-08 ADZ-1983-08	CASE (FRONT) CASE (REAR)
			E30-3240-08	MICROPHONE CORD ASSY (MODULE)
			K25-5101-08 K25-5102-08 K25-5103-08 K25-5104-08	KNOB (PTT) KNOB (UP/DOWN) KEY TOP (DOME) KNOB (LOCK)
SW3,4		-	S40-1117-05 S82-0441-08 S70-0456-08	TACT SWITCH (UP/DOWN) SLIDE SWITCH (LOCK) TACT SWITCH (PTT)
SW2		-	T91-0570-08	MICROPHONE ELEMENT
SW1		-	LR40672	IC
IC1		Q1-3	2SC1623	TRANSISTOR

### SPECIFICATIONS

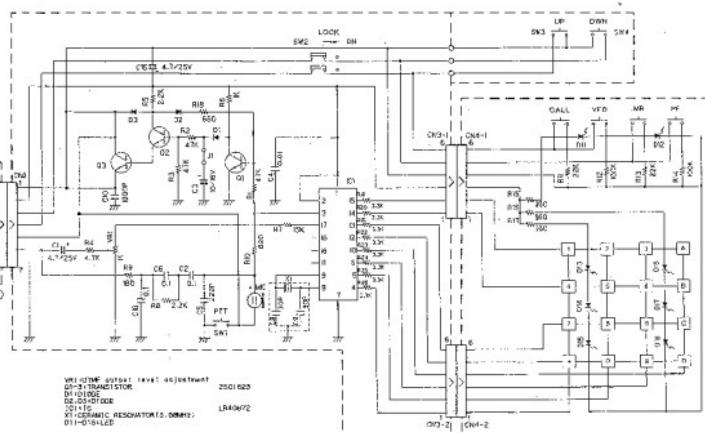
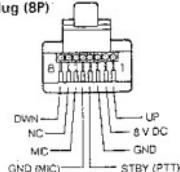
Type	Electret capacitor
Power requirement	8.0 V DC ± 10%
Current drain	35 mA or less
Sensitivity	-7.2 ± 3 dB (at 1 kHz) (0 dB = 1 V/0.1 pa)
Impedance	900Ω ± 30% (at 1 kHz)

### ADJUSTMENT

Item	Condition	Test equipment/Measurement	Adjustment	Specifications/Remarks
DTMF output level	[3] [6] key at same time push	AF VTVM 	VR1	2.4mV ± 0.01mV

### SCHEMATIC DIAGRAM

### CONNECTOR END VIEW



# TM-G707A/E

## ACCESSORY MICROPHONE T91-0396-05 : E, M type (MC-45)

### EXTERNAL VIEW



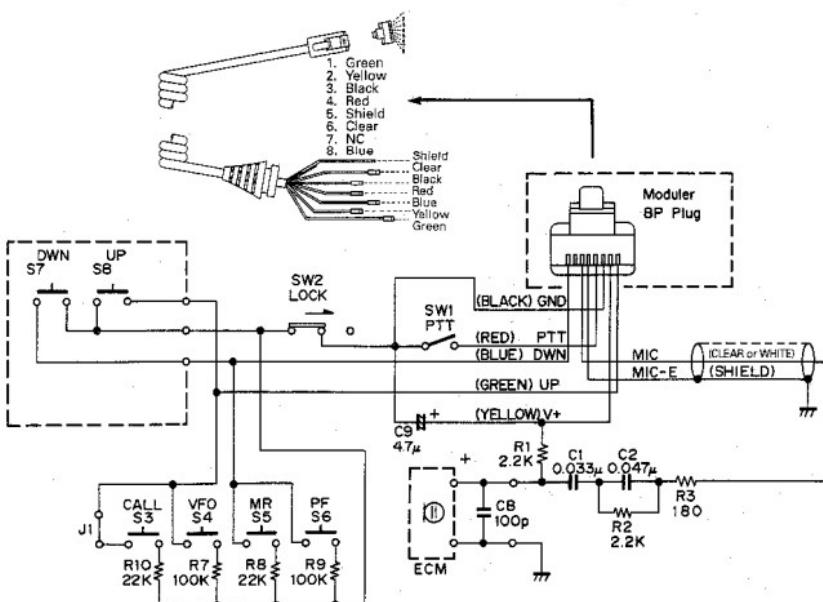
### PARTS LIST

Ref. No.	Address	New parts	Parts No.	Description
			A02-0636-08 A02-0300-08	CASE (FRONT) CASE (REAR)
			E30-3006-08	CURL CORD ASSY
			G13-0933-08	CUSHION (UP, DWN)
			K29-3165-08 K29-3168-18 K29-3169-18 K29-3170-08	KNOB (PTT) KNOB (UP) KNOB (DOWN) KNOB (CALL, VFO, MR, PF)
SW3-B			S56-1409-28	SWITCH ASSY (UP,DWN)
SW7-B			S40-1431-08	TACT SWITCH (CALL,VFO,MR,PF)
SW1			S40-1437-08	TACT SWITCH (UP,DWN)
SW2			S50-1431-08	MICRO SWITCH LOCK
			S31-1422-08	SLIDE SWITCH LOCK
			T91-0383-08	MICROPHONE ELEMENT

### SPECIFICATIONS

Type	Electret capacitor
Power requirement	8.0 V DC $\pm$ 10%
Current drain	0.6 mA or less
Sensitivity	-71.5 $\pm$ 3.5 dB (at 500 Hz) (0 dB = 1 V/0.1 pa)
Impedance	3.1k $\Omega$ $\pm$ 30% (at 1kHz)

### SCHEMATIC DIAGRAM



# TM-G707A/E

## SEMICONDUCTOR DATA

### 78P064GCJTUB (LCD DISPLAY ASSY CPU:IC1)

Pin No.	Port name	I/O	Function	Active Level
1	P11/AN11	AI	AF VOL	-
2	P12/AN12	AI	Photo transistor	-
3	P13/AN13	AI	Dimmer reference	-
4	P14/AN14	I	Dimmer detect terminal	-
5~7	P15~17/AN15~7	-	Open	-
8	AVDD	-	VDD	-
9	AVREF	-	VDD	-
10, 11	P100, P101	O	Dimmer control1, 2	H
12	VSS	-	GND	-
13, 14	P102, P103	O	Dimmer control3, 4	H
15	P30/T00	O	SC SW	-
16	P31/T01	I	〔BAND〕 key	L
17	P32/T02	I	〔PM〕 key	L
18	P33/T11	I	〔MENU〕 key	L
19	P34/T12	I	〔DIM〕 key	L
20	P35/PCL	-	Open	-
21	P36/BUZ	-	Open	-
22	P37	-	Open	-
23~26	COM0~3	O	LCD COM0~LCD COM3	-
27	BIAS	-	BIAS	-
28~30	VLC0~2	-	VLC0~VLC2	-
31	VSS	-	GND	-
32~55	S0~23	O	LCD S0~LCD S23	-
56~71	P97~P80/S24~39	O	LCD S24~LCD S39	-
72	P25/S10/S90	I	Main unit microcomputer communication SI	-
73	P26/S00/S81	O	Main unit microcomputer communication SO	-
74	P27/SCK0	-	Open	-
75	P70/S12/RXD	-	Open	-
76	P71/S02/TXD	-	Open	-
77	P72/SCK/ASCK	-	Open	-
78	IC	-	Open	-
79	X2	-	Clock oscillator connection (4.194304 MHz)	-
80	X1	-	Clock oscillator connection (4.194304 MHz)	-
81	VDD	-	VDD	-
82	XT1/P07	-	Open	-
83	XT2	-	Open	-
84	RESET	-	Reset input	-
85	P00/INTP0/T100	I	Encoder clock	-
86	P01/INTP1/T101	I	Main unit microcomputer communications request detect (connected to Pin 72)	-
87	P02/INTP2	I	〔PWR〕 key	L
88	P03/INTP3	I	Encoder data	-
89	P04/INTP4	-	Open	-
90	P05/INTP5	-	Open	-
91	P110	I	〔VFO〕 key	L
92	P111	I	〔CALL〕 key	L
93	P112	I	〔MR〕 key	L
94	P113	I	〔MHz〕 key	L
95	P114	I	〔F〕 key	L
96	P115	I	〔TONE〕 key	L
97	P116	I	〔REV〕 key	L
98	P117	I	〔LOW〕 key	L
99	AVSS	-	GND	-
100	P10/AN10	AI	Squelch VR	-

## SEMICONDUCTOR DATA

## I/O port specification

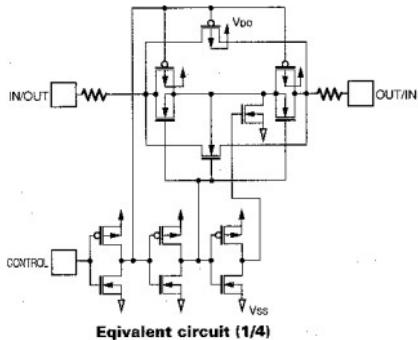
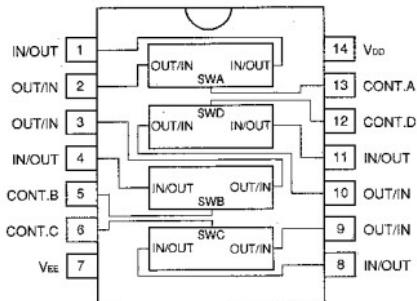
## 78058GC-A7X8BT (CONTROL UNIT CPU:IC508)

Pin No.	Port name	I/O	Function	Active Level
1		I	Open (connected to Vdd)	-
2	MIC DW	AI	MIC [DOWN] [MRI] [PF] key	H:No operation,4.7V max;P MIC,4.3V max; [PF] pressed,2.5V max; [MRI] pressed,0.6V max; [DOWN] pressed
3	MIC UP	AI	MIC [UP] [CALL] [VFO] key	H:No operation,4.3V max; [VFO] pressed,2.5V max; [CALL] pressed,0.6V max; [UP] pressed
4	AVSS	-	A/D conversion circuit VSS terminal (connected to ground)	-
5	SUB TONE	O	Sub tone signal D/A output terminal	-
6	DTMF	O	DTMF signal D/A output terminal	-
7	AVREF1	-	D/A conversion circuit reference voltage terminal (connected to Vdd)	-
8	RXD/PKS	I	RS-232C Rx/D terminal	-
9	TXD/SOC	O	RS-232C Tx/D terminal	-
10	MIC PTT	I	MIC [PTT] key	H:No operation,L:pressed
11	PLL EN	O	PLL enable	L:Enable
12	PLL CK	O	PLL & shift register clock	-
13	PLL DT	O	PLL data	-
14	SFT DT	O	Shift register data	-
15	PLL UL	I	PLL unlock signal	-
16	SI	I	Panel microcomputer communications SI	-
17	SO	O	Panel microcomputer communications SO	-
18	RST	I	Reset switch input	H:pressed,L:No operation
19	MUTE0	O	SPMIC AF MUTE SW	H:MUTE ON
20	MUTE1	O	Internal/external AF mute switch	H:MUTE ON
21		O	Open (connect Vdd)	-
22	AGC	O	AGC	H:AGC ON
23	FAN	O	FAN	H:FAN ON
24	PLL SW	O	PLL SW	H: One moment when PPT On
25	V SHIFT	O	VHF VCO SHIFT SW	-
26	PSW	O	Power Switch	H:PSW ON,L:PSW OFF
27				-
28	AM SW	O	AM SW	H:AM,L:FM
29~30		I	Open (connect Vdd)	-
31	DM CK	O	DTMF decoder clock	-
32	DM DT	O	DTMF decoder data	-
33	VSS	-	Microcomputer ground potential	-
34	DM STD	I	DTMF decoder detect terminal	-
35	LCSW	O	SC switch control	H:SC OFF,L:SC ON
36~39	SIM0~3	I	Destination Bit 6~3	-
40	EEP SO	I	EEPROM SO	-
41	EEP CS	O	EEPROM chip select	H:,L select
42	EEP CK	O	EEPROM clock	-
43	EEP SI	O	EEPROM SI	-
44	PWM	O	APC control, BPF control (PWM)	-
45	P CHCK	I	Packet connection check	-
46	BEEP	O	Beep output	-
47	ASW 1200	O	Packet signal input select 1200bps	H:1200bps side input
48	ASW DM	O	DTMF monitor ON/OFF	H:MONI ON
49	ASW 9600	O	Packet signal input select 9600bps	H:9600bps side input
50	1750HZ	O	1750Hz	-
51	ASW SQ	O	PR1 squelch control analog switch	L:PR1 MUTE
52	MIC BUSY	O	Speaker mix Busy LED	H:BUSY LED ON
53	V NAR	O	Audio synthesis IC serial Input enable	L:Enable
54	V RST	O	Audio synthesis IC reset	-
55	V CS	O	Audio synthesis chip select	-
56	V DT	O	CTCSS data/audio synthesis IC data	-
57	V/CT CK	O	CTCSS data/audio synthesis IC clock, connection check	-
58	CT DE	O	CTCSS detected	L:Detected
59	CT EN	O	CTCSS enable	-
60	RESET	I	External reset terminal	-
61	SIM CH	I	ICH display jumper	L:jumper present
62	B CHK	O	Power supply check	H:Voltage drop
63	INT2	I	Panel microcomputer communications request signal connected to Pin 161	L:Communications request
64	INT3	I	(Connected to Pin 2)	-
65	VR CK	O	Electronic VR clock	-
66	VR EN	O	Electronic VR enable	-
67	VR DT	O	Electronic VR data	-
68	VDD	-	Positive power supply terminal	-
69	X2	-	System clock (4.194304MHz)	-
70	X1	I	System clock (4.194304MHz)	-
71	VPP	-	Connected to VSS	-
72		-	Open	-
73		-	Open (Connected to VSS)	-
74	AVDD	-	A/D conversion circuit power supply terminal (connected to VDD)	-
75	AVREF0	-	A/D conversion circuit reference voltage terminal (connected to Vdd)	-
76	SQ IN	I	Squelch input	-
77	SM IN	I	S meter input	-
78~80		I	Open (Connected to Vdd)	-

# TM-G707A/E

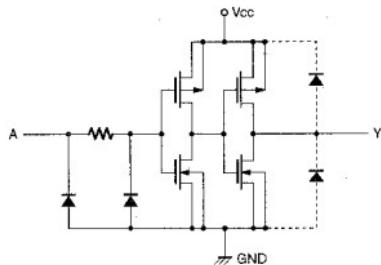
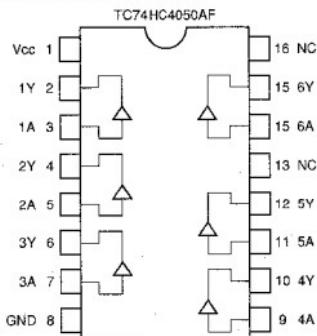
## SEMICONDUCTOR DATA

### BU4066BCF CONTORL UNIT:IC507



Equivalent circuit (1/4)

### TC74HC4050AF CONTORL UNIT:IC510



Equivalent circuit (1/6)

## DESCRIPTION OF COMPONENTS

## TX-RX UNIT (X57-557X-XX)

Ref.No.	Application/Function	Operation/Condition/Compatibility
Q1	Fan switch	
Q2	Buffer amp	12.8MHz
Q3	F in amp	UHF
Q4	F in amp	VHF
Q5, Q6	Charge pump	VHF/UHF common
Q11	VCO power select switch	VHF or UHF On
Q12	VCO 8CL ripple filter	VHF-UHF common
Q13	Common amp	VHF
Q14	Common amp	UHF
Q15	Transmission driver	UHF transmission on
Q16	Transmission driver	VHF transmission on
Q17	Transmission driver	UHF transmission on
Q18	Transmission driver	VHF transmission on
Q19	Transmission driver	UHF transmission on
Q20, Q21	APC control	VHF/UHF common transmission on
Q22	Protection switch	APC temperature protection
Q23, Q24	AVR	For PB
Q25	Protection switch	Excess voltage protection
Q26	Power switch	For 8RU
Q27	Power switch	For 8TU
Q28	Power switch	For 8TV
Q29	Power switch	For 8CU
Q30	Power switch	For 8CV
Q31	Power select switch	43R/80R selection
Q32	Power select switch	14R/36R selection
Q33	RF amp	When VHF reception on
Q34	RF amp	
Q35	Doubler	
Q36	RF amp	When UHF reception on
Q37	First mixer	
Q38	First mixer switch	
Q39	RF amp	
Q40	RF amp	When UHF reception on
Q42	Switch for band switch	When UHF reception on
Q43	First mixer switch	When VHF reception on
Q44	First mixer switch	When UHF reception on
Q45	First mixer	When VHF reception on
Q46	First mixer	When UHF reception on
Q47	AGC amp	
Q48	First IF amp	VHF/UHF common transmission on
Q49	Tripler	Second local
Q50	Select switch	
Q51, Q53	Power switch	Power Switch
Q52	Noise amp	Squelch
Q64	AGC amp	
Q55	Mute switch	When speaker mic used
Q56	Mute switch	When internal speaker used
Q60	Mute switch	When internal speaker used
Q61, Q62	Mute switch	When internal speaker used
Q501	Backup switch	Backup on off
Q502	Power switch	For SW5C
Q503	Reset switch	Reset when on
Q504	BUSY LED switch	When speaker mic used
Q505	Buffer amp	9600bps RD
Q506	Buffer amp	1200bps RD

Ref.No.	Application/Function	Operation/Condition/Compatibility
IC1	PLL IC	PLL
IC2	Select switch	Loop filter switching
IC3	Speed up	Loop filter
IC4	VCO	VHF
IC5	VCO	UHF
IC6	Comparator	APC
IC7	Shift register	
IC8	FM wave detection	
IC9	Select switch	
IC10	5V regulator	5C
IC1	Microcomputer	LCD display assy
IC1	Audio amp	(Main)
IC2	8V AVR	8C (Main)
IC3	Power module	VHF (Main)
IC4	Power module	UHF (Main)
IC501	6V regulator	
IC502	5V regulator	5C
IC503	Reset detect	
IC504	Electronic control	
IC505	DTMF decoder	
IC506	Base band IC	
IC507	Analog switch	
IC508	Microcomputer	
IC509	Comparator	For speaker mic power switch
IC510	Buffer amp	PRI/TXD/RXD/PSI/PSO
IC511	EEPROM	
D1,D2	Select switch	F in switch
D3	Lock detect	Lock detect
D4	Reduce voltage	Charge pump
D6	Quick charge	VCO ripple filter
D6-D9	Select switch	Hetero switch
D10-D12	Voltage stabilizer	Q16, Q18, Q19 base bias
D13,D43	Excess power prevention	Q33 protection
D14,D18	Antenna switch	UHF
D15-D17,D42	Antenna switch	VHF
D19,D21	Power detection	UHF
D20,D23	Power detection	VHF
D22	OR circuit	8TV/8TU
D24	Voltage stabilization	Q23 base bias
D25	Excess voltage prevention	For PB
D26	Excess power prevention	Q38 protection
D27	Band switch	
D28,D29,D31	Band bus tuning	VHF front end
D30	Band switch	
D33	OR circuit	43R/36R
D34,D35	Back current prevention	VCO power switch
D37,D38	Select switch	Hetero switch
D39	Rectifier	Noise amp output
D40,D41	Diverse connection prevention	
D501,D503	Back current prevention	IC501
D502	Voltage stabilization	Q501
D504	Reduce voltage	RST port
D506,D508	Back current prevention	Data terminal
D507	Back current prevention	MIC terminal
D508,D509	Limiter	PKD

# TM-G707A/E

## TERMINAL FUNCTION

### TX-RX UNIT (X57-557X-XX:A/3)

CN No.	Pin No.	Name	Function
CN1	1	FAN	SB output for fan
	2	E	GND
CN3	1	AF	Audio signal output for speaker mic
	2	AF	Audio signal output for speaker mic
	3	E	GND
	4	E	GND
	5	PWM	APC and VHF-BPF control
	6	UL	Unlock detect output
	7	Not used	
	8	DTP	PLL data input
	9	CK	PLL shift register clock input
	10	EP	PLL enable input
	11	E	GND
	12	Not used	
	13	MOV	VHF modulation input
	14	MOU	UHF modulation input
	15	E	GND
	16	A00	Audio signal input for speaker mic
	17	A01	Audio signal input for internal/external speakers
	18	E	GND
	19	SPE	Ground for speaker mic
	20	SPE	Ground for speaker mic
CN4	1	PB	Panel power supply output
	2	B	13.8V
	3	E	GND
	4	PSW	Power switch control input
	5	PE	Panel ground
	6	8C	Common 8V
	7	MUTE0	Mute control signal input for speaker mic
	8	RD	Demodulation audio output
	9	E	GND
	10	MUTE1	Mute control signal input for internal/external speakers
	11	SO	Squelch voltage output
	12	SM	S meter voltage output
	13	AGC	AGC control signal input
	14	FAN	Fan control signal input
	15	DTS	Shift register data input
	16	PLL SW	PLL select switch
	17	V.SHIFT	VHF VCO frequency shift switch
	18	U.SHIFT	UHF VCO frequency shift switch
	19	AM SW	AM select switch
	20	E	GND
CN5	1		Internal speaker output
	2		GND

### LCD ASSY (B38-0797-35)

CN No.	Pin No.	Name	Function
CN1	1	E	GND
	2	SW	Band select switch signal input
	3	SQ	Squelch volume voltage input
	4	VOL	AF volume voltage input
	5	VDD	Reference voltage output (5V)

### CONTROL UNIT (X57-557X-XX:B/3)

CN No.	Pin No.	Name	Function
CN501	1	PSI	Serial data input
	2	PSO	Serial data output
	3	PE	Panel ground
	4	PB	Panel power supply output
CN502	1	PB	Panel power supply input
	2	B	13.8V
	3	E	GND
	4	PSW	Power switch control output
	5	PE	Panel ground
	6	8C	Common 8V
	7	MUTE0	Mute control signal output for speaker mic
	8	RD	Demodulation audio input
	9	E	GND
	10	MUTE1	Mute control signal output for internal/external speakers
	11	SO	Squelch voltage input
	12	SM	S meter voltage input
	13	AGC	AGC control signal input
	14	FAN	Fan control signal input
	15	DTS	Shift register data output
	16	PLL SW	PLL select switch
	17	V.SHIFT	VHF VCO frequency shift switch
	18	U.SHIFT	UHF VCO frequency shift switch
	19	AM SW	AM select switch
	20	E	GND
CN503	1	AF	Audio signal input for speaker mic
	2	AF	Audio signal input for speaker mic
	3	E	GND
	4	E	GND
	5	PWM	APC and VHF BPF control
	6	UL	Unlock detect input
	7	Not used	
	8	DTP	PLL data input
	9	CK	PLL shift register clock output
	10	EP	PLL enable output
	11	E	GND
	12	Not used	
	13	MOV	VHF modulation output
	14	MOU	UHF modulation output
	15	E	GND
	16	A00	Audio signal output for speaker mic
	17	A01	Audio signal output for internal/external speakers
	18	E	GND
	19	SPE	Ground for speaker mic
	20	SPE	Ground for speaker mic
CN504	1	VCK	VS-3 clock output
	2	VDT	VS-3 data output
	3	VCS	VS-3 chip select
	4	RST	VS-3 reset output
	5	NAR	VS-3 input enable output
	6	E	GND
	7	SC	Common 5V
	8	V0	Audio input
CN701	1	E	GND
	2	SW	Band select switch signal output
	3	SQ	Squelch volume voltage output
	4	VOL	AF volume voltage output
	5	VDD	Reference voltage input (5V)

## PARTS LIST

## CAPACITORS

CC	45	TH	1H	220	J
1	2	3	4	5	6

- 1 = Type ... ceramic, electrolytic, etc.  
 2 = Shape ... round, square, ect.  
 3 = Temp. coefficient  
 4 = Voltage rating  
 5 = Value  
 6 = Tolerance



## Capacitor value

010 = 1pF  
 100 = 10pF  
 101 = 100pF  
 102 = 1000pF = 0.001μF  
 103 = 0.01μF

2 2 0 = 22pF  
 Multiplier  
 2nd number  
 1st number

## Temperature coefficient

1st Word	C	L	P	R	S	T	U
Color*	Black	Red	Orange	Yellow	Green	Blue	Violet
ppm/°C	0	-80	-150	-220	-330	-470	-750

2nd Word	G	H	J	K	L
ppm/°C	±30	±60	±120	±250	±500
Example : CC45TH = -470 ± 60 ppm/°C					

## Tolerance (More than 10pF)

Code	C	D	G	J	K	M	X	Z	P	No code
(%)	±0.25	±0.5	±2	±5	±10	±20	+40	+80	+100	More than 10pF - 10 - +50
						-20	-20	-0		Less than 4.7pF - 10 - +75

## (Less than 10pF)

Code	B	C	D	F	G
(pF)	±0.1	±0.25	±0.5	±1	±2

## Voltage rating

2nd word	A	B	C	D	E	F	G	H	J	K	V
1st word											
0	1.0	1.25	1.6	2.0	2.5	3.15	4.0	5.0	6.3	8.0	-
1	10	12.5	16	20	25	31.5	40	50	63	80	35
2	100	125	160	200	250	315	400	500	630	800	-
3	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	-

## Chip capacitors

(Ex) C C 7 3 F S L I H 0 0 0 J  
 1 2 3 4 5 6 7  
 (Chip) (CH, RH, UJ, SLI)

(Ex) C K 7 3 F F 1 H 0 0 0 Z  
 1 2 3 4 5 6 7  
 (Chip) (B, F)

Refer to the table above

- 1 = Type  
 2 = Shape  
 3 = Dimension  
 4 = Temp coefficient  
 5 = Voltage rating  
 6 = Value  
 7 = Tolerance

## Dimension (Chip capacitors)

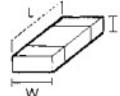
Dimension code	L	W	T
Empty	5.6 ± 0.5	5.0 ± 0.5	Less than 2.0
A	4.5 ± 0.5	3.2 ± 0.4	Less than 2.0
B	4.5 ± 0.5	2.0 ± 0.3	Less than 2.0
C	4.5 ± 0.5	1.25 ± 0.2	Less than 1.25
D	3.2 ± 0.4	2.5 ± 0.3	Less than 1.5
E	3.2 ± 0.2	1.6 ± 0.2	Less than 1.25
F	2.0 ± 0.3	1.25 ± 0.2	Less than 1.25
G	1.6 ± 0.2	0.8 ± 0.2	Less than 1.0

## RESISTORS

## Chip resistor (Carbon)

(Ex) R K 7 3 E B 2 B 0 0 0 J  
 1 2 3 4 5 6 7  
 (Chip) (B, F)

## Dimension



## Carbon resistor (Normal type)

(Ex) R D 7 3 E B 2 C 0 0 0 J  
 1 2 3 4 5 6 7

- 1 = Type  
 2 = Shape  
 3 = Dimension  
 4 = Temp coefficient  
 5 = Rating wattage  
 6 = Value  
 7 = Tolerance

## Dimension (Chip resistor)

Dimension code	L	W	T
E	3.2 ± 0.2	1.6 ± 0.2	1.0
F	2.0 ± 0.3	1.25 ± 0.2	1.0
G	1.6 ± 0.2	0.8 ± 0.2	0.5 ± 0.1

## Rating wattage

Code	Wattage	Code	Wattage	Code	Wattage
1J	1/16W	2C	1/16W	3A	1W
2A	1/10W	2E	1/4W	3D	2W
2B	1/8W	2H	1/2W		

# TM-G707A/E

## PARTS LIST

\* New Parts. indicates safety critical components.

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Telle ohne Parts No. werden nicht geliefert.

TM-G707A/E

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
<b>TM-G707A/E</b>											
1	3B		A01-2121-13	CABINET (LOWER)	L: Scandinavia Y: PX (Far East, Hawaii) Y: AAES (Europe)	40	2B		G11-2532-04	SHEET	K: USA T: England X: Australia
2	1B		A01-2122-13	CABINET (UPPER)		41	3A		G13-1573-24	CUSHION (PANEL)	P: Canada E: Europe
3	3A	*	A22-0600-01	SUB PANEL		42	2B		G13-1820-04	CUSHION	X: Australia
4	3A	*	A62-0571-13	PANEL ASSY		43	3A		G13-1625-04	CUSHION (PANEL)	M: Other Areas
5	3B	*	A62-0028-01	REAR PANEL		44	3A		G13-1847-14	CUSHION (PANEL)AND KEY)	
6	1B	*	B09-0395-05	CAP (PHONE)		45			H10-8806-01	FOAM PACKING MOLD	
7	3A	*	B10-2151-02	FRONT GLASS		46			H11-9897-04	POLYSTYRENE FOAMED BOARD	
		*	B11-1193-08	REFLECTOR (LCD ASSY)		47			H25-0103-04	PROTECTION BAG (125/250/0.07)	
LED1-15		*	B30-2187-08	LED (LCD ASSY)		48			H25-0337-04	PROTECTION BAG (150/300/0.03)	
8	3A	*	B38-0797-05	LCD ASSY		49			H25-0722-04	PROTECTION BAG (230/400/0.07)	
		*	B38-0798-08	LCD (LCD ASSY)		50		*	H52-1078-02	ITEM CARTON CASE	K
9	1B		B42-2455-04	STICKER (IM4/M4/M4)		50		*	H52-1079-02	ITEM CARTON CASE	M2,M4
10	-		B46-0337-03	WARRANTY CARD	ACSY	51			H52-1080-02	ITEM CARTON CASE	E,E3
10	-		B46-0489-10	WARRANTY CARD	ACSY	52			J29-0652-13	HOLDER (MOBLE)	ACSY
11	-		B62-0654-00	INSTRUCTION MANUAL (ENGLISH)	ACSY	53	3A		J30-1237-14	BRACKET (MOBLE)	ACSY
				K,M2,M4					SPACER		
12	-		B62-0655-00	INSTRUCTION MANUAL (ITALY)	ACSY	54			K27-3164-13	SPACER	
13	-		B62-0896-00	INSTRUCTION MANUAL (GERMANY)	ACSY	55			K27-3165-03	BUTTON KNOB (POWER/CALL)	
14	-		B62-0897-00	INSTRUCTION MANUAL (SPANISH)	ACSY	56			K27-3165-23	BUTTON KNOB (VFO)	
15	-		B62-0898-00	INSTRUCTION MANUAL (FRENCH)	ACSY	57			K27-3167-33	BUTTON KNOB (MR)	
16	-		B62-0899-00	INSTRUCTION MANUAL (CHINESE)	ACSY	58			K27-3168-23	BUTTON KNOB (PM)	
17	-		B62-0870-00	INSTRUCTION MANUAL (DUTCH)	ACSY	59			K27-3169-33	BUTTON KNOB (MENU)	
18	3B		B72-1425-04	MODEL NAME PLATE (FRATA)	E3	60			K27-3170-13	LEVER KNOB (RELEASE)	
19	1B		B72-1340-04	MODEL NAME PLATE	K	61			K27-3174-13	BUTTON KNOB (BAND)	
19	3B		B72-1341-04	MODEL NAME PLATE	M2,M4	62			K27-3175-03	BUTTON KNOB (WZ)	
19	3B	*	B72-1342-04	MODEL NAME PLATE	E,3	63			K29-5221-03	KNOB (ENCODER)	
20	1B		E04-0167-05	RF COAXIAL PEGLATE(M)	K,M2,M4	64			K29-5222-03	KNOB (VOL)	
20	1B		E04-0170-05	RF COAXIAL RECEPTACLE(M)	E,3	65			K29-5223-03	KNOB (SQL)	
21	-		E30-2111-15	DC CORD ASSY(MOBLE)	ACSY						
22	1B		E30-2197-15	DC C066		A			N14-0596-04	CIRCULAR NUT(VOL)	
			E30-3006-08	MIC CUAL CABLEITO SERVICE)	E,3	B			N33-2306-45	OVAL HEAD MACHINE SCREW (CAB)	
			E30-3240-08	MIC CUAL CABLEITO SERVICE)	M2,M4,E	C			N67-3009-46	PAN HEAD SEMI SCREW W (MODULE)	
23	1B		E31-3197-15	LEAD WIPE WITH CONNECTOR(SPI)	K	D			N80-7010-45	PAN HEAD TAPIT SCREW (PANEL)	
24a	2A		E37-0632-05	FLAT CABLE (20P)		E			N80-2810-45	PAN HEAD TAPIT SCREW (FANI)	
24b	2A		E37-0724-05	FLAT CABLE (20P)	E,3	F			N83-2005-46	PAN HEAD TAPIT SCREW	
						G			N83-2808-46	PAN HEAD TAPIT SCREW	
						H			N87-2806-48	BRAZIER HEAD TAPIT SCREW	
DN1	-		E40-5953-05	PIN ASSY (LCD ASSY)	ACSY	I			N89-0311-05	SCREW SET (MOBLE)	ACSY
CN2	-		E40-5409-05	PIN ASSY (LCD ASSY)		J			N89-0311-05	SCREW SET (MOBLE)	ACSY
25	2A		F07-1428-23	COVER (DIN IP)		66			N99-0311-05	SCREW SET (MOBLE)	E,E3
26	1B		F07-1429-03	COVER (FAN)		67			N99-0322-05	SCREW SET	M2,M4
27	2B		F19-2233-04	SHIELDING COVER (VCO)					N99-0322-05	SCREW SET	
28	-		F51-0017-05	FUSE(B73015A)	ACSY	SW1-3			S70-0410-05	TACT SWITCH (LCD ASSY)	
28	1B		F51-0017-05	FUSE(B73015A)		SW4	3A		W02-1921-05	ENCODER (LCD ASSY)	
			F51-0017-05	FUSE(B73015A)		SW5-8			S70-0439-05	TACT SWITCH (LCD ASSY)	
29	-		F51-0618-05	FUSE(B73012DA)	ACSY	SP			T07-0331-05	SPEAKER	K
30	2A		G02-0794-04	FLAT SPRING (CONT UNIT)		#8			T42-0311-15	FANMOTOR	
31	1B		G02-0803-03	FLAT SPRING (AF AMP/AVRI)	MIC				T91-0396-05	MICROPHONE	ACSY
			G02-0809-04	FLAT SPRING (TX-RX UNIT)	MIC			T91-0396-05	MICROPHONE	ACSY	
33	3B		G09-0434-14	SPRING					T91-0570-06	MIC ELEMENT (TO SERVICE)	M2,M4
34	2A,3A		G10-0792-14	FIBROUS SHEET	MIC				T91-0586-05	MICROPHONE	K
35	2A		G10-0793-14	FIBROUS SHEET		IC1			LA4446	IC(AF POWER AMP)	
36	3B		G10-0794-14	FIBROUS SHEET		IC2			TA78085	IC(REGULATOR)	E,E3
37	1B		G11-0779-04	RUBBER CUSHION (SP)		IC3	28		M67746	IC(POWER MODULE/VHF)	
38	2A		G11-0779-14	SHEET		IC4	28		M57789MR-24	IC(POWER MODULE/A430 450MHz35W)	
39	3B		G11-0784-14	SHEET		IC1			76P084GCTUB	IC(PULG ASSY)	K

## PARTS LIST

TX-RX UNIT (X57-557X-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
<b>TX-RX UNIT (X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3</b>											
C1.2			CK73GB1H102K	CHIP C 1000PF K		C77			CK73GB1H471K	CHIP C 470PF K	
C3			C92-0558-05	CHIP-ELE 1000F 16WV		C78			CK73GB1H102K	CHIP C 1000PF K	
C4			CK73GB1H103K	CHIP C 0.010UF K		C79			CK73GB1H471K	CHIP C 470PF K	
C5			CK73GB1E123K	CHIP C 0.020UF K		C80			CK73GB1A105K	CHIP C 1.0UF K	
C6			CK73GB1H102K	CHIP C 1000PF K		C81			CK73GB1H1050C	CHIP C 5.0PF C	
C7			CK73GB1H101B	CHIP C 1.0PF B		C82			CK73GB1H200J	CHIP C 33PF J	
C8.9			CK73GB1H040C	CHIP C 4.0PF C		C83			C9-0523-05	CHIP-ELE 16UF 16WV	
C10			CK73GB1H402K	CHIP C 1000PF K		C84			CK73GB1H102K	CHIP C 1000PF K	
C11			CK73GB1H103K	CHIP C 0.010UF K		C85			CK73GB1H101J	CHIP C 1.0PF J	
C12			CK73GB1H102K	CHIP C 1000PF K		C87			CK73GB1H102K	CHIP C 1000PF K	
C13			CK73GB1H103K	CHIP C 0.010UF K		C88			CK73GB1H101J	CHIP C 1.0PF J	
C14,15			CK73GB1H030C	CHIP C 3.0PF C		C89			CK73GB1H102K	CHIP C 1000PF K	
C17			CK73GB1H471K	CHIP C 470PF K		C90,91			CK73GB1H103K	CHIP C 0.010UF K	
C18			CK73GB1H050C	CHIP C 3.0PF C		C92,93			CK73GB1H02Y	CHIP C 1000PF K	
C19			CK73GB1H060D	CHIP C 6.0PF D		C94			C9-0523-05	CHIP-ELE 16UF 16WV	
C20			CK73GB1H101D	CHIP C 1.0PF D		C95,96			CK73GB1H102K	CHIP C 1000PF K	
C21			CK73GB1H147K	CHIP C 470PF K		C97			C9-0572-05	CHIP C 1000PF J	
C23,24			CK73GB1C104K	CHIP C 0.10UF K		C98			C9-0555-05	CHIP C 5.0PF C	
C26			CK73GB1H171K	CHIP C 470PF K		C99			CK73GB1H102K	CHIP C 0.010UF K	
C27			CK73GB1H101J	CHIP C 1.0PF J		C101			CK73GB1H102K	CHIP C 1000PF X	
C28			CK73GB1H102K	CHIP C 1000PF K		C102			C9-0550-05	CHIP C 1.0PF D	
C29			CK73GB1C147K	CHIP C 0.047UF K		C103			CK73GD1H050B	CHIP C 6.5PF B	
C30			C92-0002-05	CHIP-TAN 0.23UF 35WV		C104			CK73GB1H101J	CHIP C 1.0UF J	
C33,34			C92-0059-05	CHIP-TAN 1.0UF 10WV		C105			C9-0610-05	CHIP-ELE 47UF 16WV	
C35,36			C92-0511-05	CHIP-TAN 0.15UF 35WV		C106			C9-0554-05	CHIP C 4.0PF C	
C37,38			C92-0566-05	CHIP-TAN 4.7UF 10WV		C107			CK73GB1C104K	CHIP C 0.10UF K	
C40			CK73GB1H151J	CHIP C 1000PF J		C108			CK73GB1H02YJ	CHIP C 3.0PF J	
C41			CK73GB1H103K	CHIP C 0.010UF K		C109,110			CK73GB1H030J	CHIP C 1000PF K	
C42			C92-0065-05	CHIP-TAN 4.7UF 10WV		C111			C9-0572-05	CHIP C 1.0PF J	
C43			CK73GB1H101J	CHIP C 1000PF J		C112			C9-0564-05	CHIP C 2.7UF J	
C44			CK73GB1H103K	CHIP C 0.010UF K		C113			C9-0556-05	CHIP C 3.0PF D	
C45			C92-0933-05	CHIP-ELE 3.0UF 10WV		C114,115			CK73GB1H102K	CHIP C 1000PF K	
C46			CK73GB1H102K	CHIP C 1000PF K		C116			CK73GD1H050B	CHIP C 0.5PF B	
C47			CK73GD1H040C	CHIP C 3.0SF C		C117			CK73GD1H02YB	CHIP C 2.0PF B	
C48,50			CK73GD1H040C	CHIP C 4.0PF C	E3	C118			CK73GD1H050B	CHIP C 0.5PF B	
C51			CK73GB1H115QJ	CHIP C 1.0PF J		C119			CK73GD1H010B	CHIP C 1.0PF B	
C52,53			CK73GB1H102K	CHIP C 1000PF K		C120			CK73GD1H050B	CHIP C 0.5PF B	
C54			CK73GB1H050C	CHIP C 5.0PF C		C121			CK73GD1H02YB	CHIP C 2.0PF B	
C55			CK73GB1H1020D	CHIP C 8.0PF D		C123			CK73GB1H103K	CHIP C 0.010UF K	
C56			CK73GB1H1010B	CHIP C 1.0PF B		C124			C9-0566-05	CHIP C 3.0PF J	
C57			CK73GB1H101J	CHIP C 1.0PF J		C125			C9-0557-05	CHIP C 7.0PF D	
C58			CK73GB1H102K	CHIP C 1000PF K		C126			CK73GB1H102K	CHIP C 1000PF K	
C59			CK73FB1A105K	CHIP C 1.0UF K		C127			CK73GB1C104L	CHIP C 0.10UF K	
C60			CK73GB1H101J	CHIP C 1.0PF J		C128			C9-0567-05	CHIP C 3.0PF J	
C61-63			CK73GB1H102K	CHIP C 1000PF K		C129			CK73GD1H050B	CHIP C 0.5PF B	
C64			CK73GB1H471K	CHIP C 470PF K		C130			CK73FD1H050B	CHIP C 0.5PF B	
C65			CK73GD1H102UJ	CHIP C 12PF J		C131			CK73GB1C104K	CHIP C 0.10UF K	
C66			CK73GB1H102K	CHIP C 1000PF K		C132			CK73GD1H050B	CHIP C 0.5PF B	
C67			CK73GB1H471K	CHIP C 470PF K		C133			CK73GD1H101B	CHIP C 1.0PF B	
C68			CK73GB1H102K	CHIP C 1000PF K		C134			CK73GB1C104K	CHIP C 0.10UF K	
C69			CK73GB1H471K	CHIP C 470PF K		C135			C9-0558-05	CHIP C 5.0PF C	
C70			CK73GD1H050U	CHIP C 3.0PF J		C136			C9-0557-05	CHIP C 7.0PF D	
C71			CK73GB1H102K	CHIP C 1000PF K		C137			CK73GD1H050B	CHIP C 1000PF K	
C72			CK73GB1H471K	CHIP C 470PF K		C138			C9-0564-05	CHIP C 2.2PF J	
C73			CK73GB1C104K	CHIP C 0.10UF K		C139,140			C9-0555-05	CHIP C 5.0PF C	
C74			CK73GD1H060D	CHIP C 8.0PF D		C141			C9-0558-05	CHIP-ELE 160UF 16WV	
C75			CK73GB1H471K	CHIP C 470PF K		C142			CK73GB1H103K	CHIP C 0.010UF K	
C76			CK73GB1H102K	CHIP C 1000PF K		C143			CK73GB1A105K	CHIP C 1.0UF K	

# TM-G707A/E

## PARTS LIST

TX-RX UNIT (X57-557X-K)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
C149	CC795CH1H030C	CHIP C	3.0PF	C		C221	CK795CH1H160K	CHIP C	1000PF	K	
C150	CC795CH1H161J	CHIP C	100PF	J		C222	CK795CH1H080D	CHIP C	8.0PF	D	
C151	CC795CH1H240J	CHIP C	24PF	J		C223	CK795CH1H160K	CHIP C	1000PF	K	
C152	CK795CH1H160K	CHIP C	1000PF	K		C224	CK795B1E223K	CHIP C	0.022UF	K	E.E3
C153	CK795B1H471K	CHIP C	470PF	K		C224	CK795B1E223K	CHIP C	0.022UF	K	M2,M4
C154	CC795CH1H161J	CHIP C	100PF	J		C225	CK795B1H562K	CHIP C	5600PF	K	E.E3
C155	CK795B1H471K	CHIP C	470PF	K		C225	CK795B1H562K	CHIP C	5600PF	K	M2,M4
C156	CC795CH1H030C	CHIP C	3.0PF	C		C226	CK795CH1H160K	CHIP C	0.010UF	K	
C157	CK795B1H160K	CHIP C	1000PF	K		C227	C92-0558-05	CHIP-ELE	100UF	16WV	
C158	CC795CH1H020B	CHIP C	2.0PF	B		C228	C92MEW1H470M	ELECTRO	47UF	50WV	
C159	CK795B1H471K	CHIP C	470PF	K		C229	CK795B1H160K	CHIP C	1000PF	K	
C160	CK795B1H160K	CHIP C	1000PF	K		C230	C92-0510-05	CHIP-ELE	47UF	16WV	E.E3
C161	CK795B1H471K	CHIP C	470PF	K		C230	C92-0510-05	CHIP-ELE	47UF	16WV	M2,M4
C162	CC795CH1H160B	CHIP C	1.5PF	B		C231	C92MEW1C471M	ELECTRO	47UF	16WV	E.E3
C163-165	CC795CH1H161J	CHIP C	100PF	J		C231	C92MEW1C471M	ELECTRO	47UF	16WV	M2,M4
C166,167	CK795B1H160K	CHIP C	1000PF	K		C232	CK795B1C104K	CHIP C	0.10UF	K	E.E3
C168	CC795CH1H030C	CHIP C	3.0PF	C		C232	CK795B1C104K	CHIP C	0.10UF	K	M2,M4
C169	CK795B1H160K	CHIP C	0.010UF	K		C233	CK795B1H161J	CHIP C	100PF	J	
C170	CK795B1H471K	CHIP C	470PF	K		C234	CK795B1H160K	CHIP C	1000PF	K	
C171	CC795CH1H020B	CHIP C	2.0PF	B		C235	CK795B1H160K	CHIP C	0.010UF	K	
C172	CK795B1H160K	CHIP C	1000PF	K		C236	C92-0510-05	CHIP-ELE	47UF	16WV	
C173	CC795CH1H020B	CHIP C	2.0PF	B		C237	C92MEW1H470M	ELECTRO	47UF	50WV	
C174	CK795B1H160K	CHIP C	1000PF	K		C238	CK795B1H160K	CHIP C	0.010UF	K	
C175	CC795CH1H240J	CHIP C	27PF	J		C239	CK795B1H562K	CHIP C	5600PF	K	
C176	CC795CH1H020B	CHIP C	2.0PF	B		C240	CK795B1H160K	CHIP C	0.010UF	K	
C177	CK795B1H160K	CHIP C	1000PF	K		C241	CK795CH1H380J	CHIP C	38PF	J	
C178	CC795CH1H270J	CHIP C	27PF	J		C242	CK795CH1H820J	CHIP C	82PF	J	
C179	CC795CH1H161J	CHIP C	100PF	J		C243	C92-0510-05	CHIP-ELE	47UF	16WV	
C180	CC795CH1H240B	CHIP C	2.0PF	B		C244	CK795B1C104K	CHIP C	0.10UF	K	
C181	CK795B1H160K	CHIP C	1000PF	K		C245	CK795CH1H820J	CHIP C	68PF	J	
C182	CC795CH1H030B	CHIP C	0.5PF	B		C246	CK795CH1H161J	CHIP C	100PF	J	
C183	CK795B1H160K	CHIP C	1000PF	K		C247	CK795CH1H820J	CHIP C	82PF	J	
C184	CK795B1H160K	CHIP C	470PF	K		C248	CK795B1H160K	CHIP C	0.010UF	K	
C185	CK795B1H471K	CHIP C	470PF	K		C249	CK795CH1H160J	CHIP C	18PF	J	
C186	CC795CH1H270J	CHIP C	27PF	J		C250	CK795B1H160K	CHIP C	1000PF	K	
C187	CK795B1H160K	CHIP C	1000PF	K		C251	CK795B1H160K	CHIP C	0.010UF	K	
C188	CC795CH1H040C	CHIP C	4.0PF	C		C252-254	CK795B1C104K	CHIP C	0.10UF	K	
C189	CK795B1H471K	CHIP C	470PF	K		C255	C92-0004-05	CHIP-TAN	1.0U	16WV	
C190	CK795B1H471K	CHIP C	470PF	K		C256	CK795B1C333K	CHIP C	0.003UF	K	
C191	CK795B1H471K	CHIP C	470PF	K		C257,258	CK795CH1H161J	CHIP C	10PF	J	
C192	CK795B1H160K	CHIP C	1000PF	K		C259	CK795B1C473K	CHIP C	0.047UF	K	
C193	CK795B1H471K	CHIP C	470PF	K		C260	CK795B1H160K	CHIP C	0.010UF	K	
C194	CK795B1H471K	CHIP C	470PF	K		C261	CK795B1H160K	CHIP C	0.010UF	K	
C195	CK795B1H160K	CHIP C	1000PF	K		C262	CK795B1H272K	CHIP C	2700PF	K	
C196	CK795B1H471K	CHIP C	470PF	K		C263	C92-0558-05	CHIP-ELE	100UF	16WV	
C197	CC795CH1H030B	CHIP C	1.5PF	B		C264	CK795CH1H161J	CHIP C	100PF	J	
C198	CK795B1H471K	CHIP C	470PF	K		C265	CK795B1H160K	CHIP C	0.010UF	K	
C199	CK795B1H471K	CHIP C	470PF	K		C266	CK795CH1H103K	CHIP C	0.010UF	K	
C200	CK795B1H160K	CHIP C	1000PF	K		C267	CK795CH1H270J	CHIP C	27PF	J	
C201	CK795B1H160K	CHIP C	1000PF	K		C268,269	CK795B1H160K	CHIP C	1000PF	K	
C202	CK795B1H471K	CHIP C	470PF	K		C270	CK795B1H272K	CHIP C	2700PF	K	
C203	CK795B1H471K	CHIP C	0.010UF	K		C271	CK795B1H160K	CHIP C	0.010UF	K	
C204	CK795B1H160K	CHIP C	4.0PF	C		C272	CK795B1C104K	CHIP C	0.10UF	K	
C205	CK795B1H160K	CHIP C	82PF	J	E.E3	C273	C92-0004-05	CHIP-TAN	1.0U	16WV	
C206	CK795B1H160K	CHIP C	470PF	K		C274	CK795B1H160K	CHIP C	1000PF	K	
C207	CK795B1H471K	CHIP C	470PF	K		C275	C92-0035-05	ELEC-CAP	1000UF	16WV	
C208	CC795CH1H060D	CHIP C	6.0PF	D		C276	C92-0004-05	CHIP-TAN	1.0U	16WV	
C209	CK795B1H160K	CHIP C	1000PF	K		C277	C92-0035-05	ELEC-CAP	1000UF	16WV	
C210	CC795CH1H240B	CHIP C	2.0PF	B		C278	C92-0510-05	CHIP-ELE	47UF	16WV	
C211	CK795B1H160K	CHIP C	0.022UF	K		C279	C92MEW1C471M	ELECTRO	47UF	16WV	
C212	CC795CH1H040B	CHIP C	1.0PF	B	M2,M4	C280	CK795B1C104K	CHIP C	0.10UF	K	
C213	CK795B1H160K	CHIP C	0.010UF	K		C281	CK795B1E223K	CHIP C	0.022UF	K	
C214	CC795CH1H040C	CHIP C	4.0PF	C		C281	CK795B1E223K	CHIP C	0.022UF	K	
C215	CK795B1H160K	CHIP C	82PF	J		C281	CK795B1E223K	CHIP C	0.022UF	K	
C216	CK795B1H160K	CHIP C	1000PF	K		C281	CK795B1E223K	CHIP C	0.022UF	K	
C217	CK795B1H471K	CHIP C	470PF	X		C281	CK795B1E223K	CHIP C	0.022UF	K	
C218	CK795B1H160K	CHIP C	0.010UF	K		C281	CK795B1E223K	CHIP C	0.022UF	K	
C219	CK795B1H160K	CHIP C	1000PF	K		C281	CK795B1E223K	CHIP C	0.022UF	K	
C220	CK795B1H160K	CHIP C	0.010UF	K		C281	CK795B1E223K	CHIP C	0.022UF	K	

## PARTS LIST

TX-RX UNIT (X57-557X-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
C262			CK79GB1H103K	CHIP C 0.010UF K		C380			CK79GB1C104K	CHIP C 0.10UF K	
C283-287			CK79GB1H102K	CHIP C 100PF K		C382			CK79GB1H103K	CHIP C 0.010UF K	
C288			CK79GB1E23K	CHIP C 0.022UF K		TC1			C05-0084-05	CERAMIC TRIMMER CAP(10%)	
C289			CK79FB1A105K	CHIP C 1.0UF K							
C291			CK79GB1H102K	CHIP C 100PF K	E,E3	CN1			E40-3237-05	PIN ASSY(2P)	
C291			CK79GB1C104K	CHIP C 0.10UF K	M2,M4	CN2			E40-3248-05	TERMINAL	
C292			CK79GB1C104K	CHIP C 0.10UF K	E,E3	CN3			E40-5744-05	FLAT CABLE CONNECTOR(20P)	
C292			CK79GB1H102K	CHIP C 100PF K	M2,M4	CN501			E40-3237-05	PIN ASSY(2P)	
C505,506			CK79GB1H102K	CHIP C 100PF K		CN502,503			E40-5652-45	PIN ASSY(4P)	
C507			CK79GB1H103K	CHIP C 0.010UF K		CN504			E40-5244-05	FLAT CABLE CONNECTOR(20P)	
C508			CK79GB1H101J	CHIP C 100PF J		CN701			E40-5615-05	FLAT CABLE CONNECTOR(8P)	
C509			CK79GB1H101K	CHIP C 470PF K		J1			E40-5322-05	PIN ASSY(8P)	
C510			CK79GB1H102K	CHIP C 0.010UF X		J501			E11-0448-05	3.5D PHONE JACK(8P)	
C511			CE4ACWU631M	ELECTRO 330UF 6.3MV		J502			E55-0014-05	RF COAXIAL RECEPTACLE(ROUND)	
C512			CK79GB1H101J	CHIP C 100PF J		F1			E68-0877-05	MODULAR JACK	
C513			C92-0546-05	CHIP-TAN 80UF 6.3MV		F2,3			F53-0128-05	FUSE (1.5A 50V)	K
C514			CK79GB1C104K	CHIP C 0.10UF K		F4			F53-0109-05	FUSE (1.5A 50V)	
C515			C92-0606-05	CHIP-TAN 4.7UF 10WV		F501			F53-0114-05	FUSE (0.7A 50V)	
C516			C92-0568-05	CHIP-ELE 100UF 16WV		C01			F53-0109-05	FUSE (1.5A 50V)	
C517			CK79GB1H103K	CHIP C 0.010UF K		C1			L79-1115-05	TUNING COIL(450KHZ)	
C518			CK79FB1A105K	CHIP C 1.0UF K		C1			L79-9931-05	CERAMIC FILTER	
C519			CK79FB1H102K	CHIP C 470PF K		L1			L40-4771-35	SMALL FIXED INDUCTOR(47MH)	
C521			CK79GB1C104K	CHIP C 0.10UF K		L2			L40-3971-35	SMALL FIXED INDUCTOR(33MH)	
C521,523			CK79FB1H103K	CHIP C 0.010UF K		L3			L40-2261-37	SMALL FIXED INDUCTOR(22MH)	
C524,525			CK79GB1C104K	CHIP C 0.10UF K		L4			L40-2771-35	SMALL FIXED INDUCTOR(24MH)	
C526			CK79GB1H120J	CHIP C 22PF J		K,M2,M4			L40-1581-37	SMALL FIXED INDUCTOR(0.150uH)	
C528			CK79GB1H102K	CHIP C 100PF K		L5			L40-2771-36	SMALL FIXED INDUCTOR(0.24MH)	
C529			CK79GB1H102K	CHIP C 0.010UF K		L6			L40-1271-36	SMALL FIXED INDUCTOR(0.24MH)	
C531			CK79GB1H102K	CHIP C 0.010UF K		L7			L40-3371-35	SMALL FIXED INDUCTOR(0.33MH)	
C532			CK79GB1H101J	CHIP C 100PF J		L8			L40-1571-35	SMALL FIXED INDUCTOR(0.15MH)	
C534			CK79GB1H120J	CHIP C 30PF J		L9			L40-1571-35	SMALL FIXED INDUCTOR(0.15MH)	
C535			CK79GB1H103K	CHIP C 0.010UF K		L10			L40-2771-35	SMALL FIXED INDUCTOR(0.24MH)	
C536			CK79GB1H100D	CHIP C 10PF D		L11			L40-2771-35	SMALL FIXED INDUCTOR(0.24MH)	
C537			C92-0005-05	CHIP-TAN 2.2UF 6.3MV		L12			L40-5877-35	SMALL FIXED INDUCTOR(0.88MH)	
C539			CK79FB1E22K	CHIP C 0.022UF K		L13,14			[34-1239-05]	AIR-CORE COIL(0.15T)	
C540			CK79GB1H102K	CHIP C 100PF K		L15			[34-4404-05]	AIR-CORE COIL(0.15T)	
C541			CK79GB1H100D	CHIP C 10PF D		L16			[34-0742-05]	AIR-CORE COIL(0.15T)	
C542			CK79GB1H102K	CHIP C 0.010UF K		L17			[34-0895-05]	AIR-CORE COIL(0.15T)	
C543,544			C92-0004-05	CHIP-TAN 1.0UF 16WV		L18			[34-1185-05]	AIR-CORE COIL(0.25T)	
C546			CK79GB1C104K	CHIP C 0.10UF K		L19			[34-0499-05]	AIR-CORE COIL(0.15T)	
C547			CK79FB1C047K	CHIP C 0.47UF K		L20			[34-1239-05]	AIR-CORE COIL(0.15T)	
C548			CK79GB1H102K	CHIP C 100PF K		L21			[34-1195-05]	AIR-CORE COIL(0.25T)	
C550			CK79GB1H103K	CHIP C 0.010UF K	E,E3	L22			[34-0499-05]	AIR-CORE COIL(0.15T)	
C551,552			CK79GB1C104K	CHIP C 0.10UF K		L23			[34-1688-05]	AIR-CORE COIL(0.15T)	
C553			CK79GB1H103K	CHIP C 0.010UF K		L24			[34-1278-05]	AIR-CORE COIL(0.15T)	
C554			C92-0008-05	CHIP-TAN 4.7UF 10WV		L25			[34-1052-05]	AIR-CORE COIL(0.15T)	
C555			CK79FB1A105K	CHIP C 1.0UF K		L26			[34-0499-05]	AIR-CORE COIL(0.15T)	
C556			CK79FB1C104K	CHIP C 0.10UF K		L27			[34-4402-05]	AIR-CORE COIL(0.15T)	
C557,558			CK79GB1H011K	CHIP C 470PF K		L28			[34-0499-05]	AIR-CORE COIL(0.25T)	
C558			CK79GB1H27K	CHIP C 2700PF K		L29			[34-4402-05]	AIR-CORE COIL(0.15T)	
C560,561			CK79GB1H101J	CHIP C 100PF J		L30			[34-4771-35]	SMALL FIXED INDUCTOR(47MH)	
C562			CK79GB1H103K	CHIP C 0.010UF K		L31			[34-9275-54]	SMALL FIXED INDUCTOR(0.25MH)	
C563			CK79GB1H101J	CHIP C 100PF J		L32			[34-1071-35]	SMALL FIXED INDUCTOR(0.10MH)	
C564			CK79GB1H103K	CHIP C 0.010UF K	E,E3	L33			[34-4771-35]	SMALL FIXED INDUCTOR(47MH)	
C565,566			CK79GB1H101J	CHIP C 100PF J		L34			[34-0891-36]	SMALL FIXED INDUCTOR(0.15MH)	
C567			CK79GB1H103K	CHIP C 0.010UF K		L35			[34-1271-36]	SMALL FIXED INDUCTOR(12MH)	
C568-571			CK79FB1A105K	CHIP C 1.0UF K		L36			[34-0891-36]	SMALL FIXED INDUCTOR(0.15MH)	
C572,575			CK79GB1H101J	CHIP C 100PF J		L37-40			[34-1271-36]	SMALL FIXED INDUCTOR(0.15MH)	
C576,577			CK79GB1H103K	CHIP C 0.010UF K		L41			[34-1492-05]	FILTER (45MHz)	E,E3
C578			CK79GB1H103K	CHIP C 0.010UF K	K,M2,M4	L41			[34-1432-05]	FILTER (45MHz)	M2,M4

# TM-G707A/E

## PARTS LIST

TX-RX UNIT (X57-557X-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
L41			L79-1433-05	FILTER (444MHz)	K	R46,47			RK73GB1J472J	CHIP R	4.7K J 1/16W
L42			L40-8861-36	SMALL FIXED INDUCTOR(8.8nH)		R48			RK73GB1J471J	CHIP R	470 J 1/16W
L43			L34-4543-05	C01(2.5T)		R49,50			RK73GB1J473J	CHIP R	47K J 1/16W
L44			L40-1075-44	SMALL FIXED INDUCTOR(18.0nH)		R51			RK73GB1J102J	CHIP R	1.0K J 1/16W
L45			L40-2771-36	SMALL FIXED INDUCTOR(27.0nH)		R52			RK73GB1J478J	CHIP R	47 J 1/16W
L46			L40-2271-36	SMALL FIXED INDUCTOR(22nH)		R62			R92-1252-05	CHIP R	0 OHM K,M2,M4
L48			L34-4542-05	C01(3T)		R53			RK73GB1J471J	CHIP R	470 J 1/16W
L49			L40-4771-36	SMALL FIXED INDUCTOR(47nH)		R54			RK73GB1J222J	CHIP R	2.2K J 1/16W
L51			L40-1091-37	SMALL FIXED INDUCTOR(1.000uH)		R55			RK73GB1J102J	CHIP R	1.0K J 1/16W
L52			L34-4542-05	C01(3T)		R56			RK73GB1J470J	CHIP R	47 J 1/16W
L53			L79-1525-05	FILTER MODULE(435MHz)	E,E3	R58			R92-1252-05	CHIP R	0 OHM K,M2,M4
L53			L79-1525-05	FILTER MODULE(435MHz)	M2,M4	R57,58			RK73GB1J222J	CHIP R	2.2K J 1/16W
L53			L79-1525-05	FILTER MODULE(444MHz)	K	R59			RK73GB1J102J	CHIP R	10 J 1/16W
L54			L40-3971-36	SMALL FIXED INDUCTOR(29nH)		R60			RK73GB1J222J	CHIP R	2.2K J 1/16W
L55			L40-1581-37	SMALL FIXED INDUCTOR(1.150uH)		R61			RK73GB1J222J	CHIP R	22K J 1/16W
L57			L40-2271-36	SMALL FIXED INDUCTOR(22nH)		R62			RK73GB1J822J	CHIP R	8.2K J 1/16W
L58			L40-1881-37	SMALL FIXED INDUCTOR(1.150uH)		R63			RK73GB1J222J	CHIP R	2.2K J 1/16W
L59			L40-4771-36	SMALL FIXED INDUCTOR(7.7nH)		R64			RK73GB1J102J	CHIP R	10 J 1/16W
L60			L40-5861-37	SMALL FIXED INDUCTOR(5.500uH)		R65			RK73GB1J102J	CHIP R	100 J 1/16W
L61			L40-1281-37	SMALL FIXED INDUCTOR(0.120uH)		R66,67			RK73GB1J222J	CHIP R	2.2K J 1/16W
L63			L40-6861-36	SMALL FIXED INDUCTOR(8.6nH)		R68			RK73GB1J350J	CHIP R	56 J 1/16W
L501			L92-0131-05	FERRITE CHIP		R69			RK73GB1J471J	CHIP R	470 J 1/16W
X1			L77-1573-05	CRYSTAL RESONATOR(12.8MHz)		R70			RK73GB1J222J	CHIP R	220 J 1/16W
X501			L77-1476-05	CRYSTAL RESONATOR(4.19234MHz)		R71			RK73GB1J472J	CHIP R	4.7 J 1/16W
XF1			L71-0481-05	MCU (38SC158)		R72			RK73GB1J470J	CHIP R	47 J 1/16W
CP501			R90-0724-05	MULTI-COMP 1K X4		R73			RK73GB1J152J	CHIP R	1.5K J 1/16W
CP502			R90-0714-05	MULTI-COMP 1K X4		R74			RK73GB1J102J	CHIP R	10 J 1/16W
R1			R92-0665-05	CHIP R	22 J 1/2W	R75			RK73GB1J222J	CHIP R	2.2K J 1/16W
R2			RK73GB1J102J	CHIP R	1.0K J 1/16W	R76			RK73GB1J681J	CHIP R	680 J 1/16W
R3			RK73GB1J102J	CHIP R	100 J 1/16W	R77			RK73GB1J102J	CHIP R	10 J 1/16W
R4			RK73GB1J471J	CHIP R	470 J 1/16W	R78			RK73GB1J331J	CHIP R	330 J 1/16W
R5			RK73GB1J473J	CHIP R	47K J 1/16W	R79			RK73GB1J102J	CHIP R	1.5K J 1/16W
R7,8			RK73GB1J473J	CHIP R	47K J 1/16W	R80			R92-0985-05	CHIP R	22 J 1/2W
R10,11			RK73GB1J331J	CHIP R	330 J 1/16W	R81			R92-0985-05	CHIP R	22 J 1/2W
R12,13			RK73GB1J222J	CHIP R	2.2K J 1/16W	R85			RK73GB2A621J	CHIP R	620 J 1/10W
R14,15			RK73GB1J472J	CHIP R	4.7K J 1/16W	R86			RK73GB2A686J	CHIP R	5.6 J 1/10W
R16			RK73GB1J222J	CHIP R	22K J 1/16W	R87			R92-0970-05	CHIP R	0 OHM
R17			RK73GB1J220J	CHIP R	22 J 1/16W	R88			R92-2381-05	RESISTOR	220 1W
R18			RK73GB1J223J	CHIP R	22K J 1/16W	R89,90			R92-2113-05	CHIP R	100 J 1/2W
R19,21			RK73GB1J102J	CHIP R	1.0K J 1/16W	R91,92			RK73GB1J102J	CHIP R	10K J 1/16W
R22			RK73GB1J273J	CHIP R	27K J 1/16W	R93			R92-2381-05	RESISTOR	220 1W
R23			RK73GB1J103J	CHIP R	19K J 1/16W	R94			RK73GB1J222J	CHIP R	2.2K J 1/16W
R24			RK73GB1J222J	CHIP R	0 OHM	R95			RK73GB1J103J	CHIP R	10K J 1/16W
R25			RK73GB1J333J	CHIP R	33K J 1/16W	R96			RK73GB1J153J	CHIP R	15K J 1/16W
R26			RK73GB1J332J	CHIP R	3.3K J 1/16W	R97			RK73GB1J222J	CHIP R	2.2K J 1/16W
R27			RK73GB1J103J	CHIP R	10K J 1/16W	R98			RK73GB1J883J	CHIP R	88K J 1/16W
R28			RK73GB1J102J	CHIP R	100 J 1/16W	R99			RK73GB1J223J	CHIP R	22K J 1/16W
R31			RK73GB1J473J	CHIP R	47K J 1/16W	R100			RK73GB1J222J	CHIP R	2.2K J 1/16W
R32			RK73GB1J472J	CHIP R	47K J 1/16W	R101			RK73GB1J103J	CHIP R	10K J 1/16W
R33			RK73GB1J122J	CHIP R	1.2K J 1/16W	R102			RK73GB1J223J	CHIP R	22K J 1/16W
R34			RK73GB1J333J	CHIP R	3.3K J 1/16W	R103			RK73GB1J102J	CHIP R	10K J 1/16W
R35			RK73GB1J122J	CHIP R	1.2K J 1/16W	R104			RK73GB1J683J	CHIP R	68K J 1/16W
R36			RK73GB1J331J	CHIP R	330 J 1/16W	R105			RK73GB1J102J	CHIP R	10K J 1/16W
R37			RK73GB1J102J	CHIP R	1.8K J 1/16W	R106			RK73GB1J332J	CHIP R	3.3K J 1/16W
R38			RK73GB1J331J	CHIP R	330 J 1/16W	R107			RK73GB1J473J	CHIP R	47K J 1/16W
R39			RK73GB1J471J	CHIP R	470 J 1/16W	R108			RK73GB1J223J	CHIP R	22K J 1/16W
R40,41			RK73GB1J332J	CHIP R	3.3K J 1/16W	R109			RK73GB1J102J	CHIP R	100 J 1/16W
R42			RK73GB1J473J	CHIP R	47K J 1/16W	R110			RK73GB1J103J	CHIP R	10K J 1/16W
R43			RK73GB1J332J	CHIP R	3.3K J 1/16W	R111			R92-1252-05	CHIP R	0 OHM
R44,45			RK73GB1J102J	CHIP R	100 J 1/16W	R112			RK73GB1J101J	CHIP R	100 J 1/16W

## PARTS LIST

TX-RX UNIT (X57-557-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
R113-117			RK736B1J103J	CHIP R 1K J 1/16W		R189			RK736B1J122J	CHIP R 1.2K J 1/16W	
R118-122			RK736B1J182J	CHIP R 1.8K J 1/16W		R190			RK736B1J471J	CHIP R 470 J 1/16W	
R123			RK736B1J222J	CHIP R 2.2K J 1/16W		R191			RK736B1J101J	CHIP R 100 J 1/16W	
R124			RK736B1J252-05	CHIP R 0 OHM		R192			RK736B1J104J	CHIP R 100K J 1/16W	E,E3
R125			RK736B1J194J	CHIP R 180K J 1/16W		R192			RK736B1J104J	CHIP R 100K J 1/16W	M2,M4
R126			RK736B1J223J	CHIP R 22K J 1/16W		R193			RK736B1J272J	CHIP R 2.7K J 1/16W	
R127			RK736B1J161J	CHIP R 100 J 1/16W		R194			RK736B1J103J	CHIP R 10K J 1/16W	E,E3
R128			RK736B1J164J	CHIP R 100K J 1/16W		R194			RK736B1J103J	CHIP R 10K J 1/16W	M2,M4
R129			RK736B1J225J	CHIP R 2.2K J 1/16W		R194			RK736B1J252-05	CHIP R 0 OHM	K
R130			RK736B1J393J	CHIP R 33K J 1/16W		R197			RK736B1J487J	CHIP R 4.7 J 1/16W	E,E3
R131			RK736B1J221J	CHIP R 220 J 1/16W		R197			RK736B1J487J	CHIP R 4.7 J 1/16W	
R132			RK736B1J154J	CHIP R 150K J 1/16W		R198			RK736B1J487J	CHIP R 4.7 J 1/16W	
R133			RK736B1J182J	CHIP R 82K J 1/16W		R199			RK736B1J252-05	CHIP R 0 OHM	
R134			RK736B1J472J	CHIP R 4.7K J 1/16W		R200			RK736B1J334J	CHIP R 33K J 1/16W	
R135			RK736B1J104J	CHIP R 100K J 1/16W		R201			RK736B1J252-05	CHIP R 0 OHM	
R136,137			RK736B1J252-05	CHIP R 0 OHM		R202			RK736B1J476J	CHIP R 47 J 1/16W	
R138			RK736B1J473J	CHIP R 47K J 1/16W		R203			RK736B1J222J	CHIP R 2.2K J 1/16W	
R139			RK736B1J472J	CHIP R 4.7K J 1/16W		R204			RK736B1J272J	CHIP R 2.7K J 1/16W	
R140			RK736B1J222J	CHIP R 2.2K J 1/16W		R205			RK736B1J103J	CHIP R 10K J 1/16W	
R141			RK736B1J1471J	CHIP R 470 J 1/16W		R206			RK736B1J1474J	CHIP R 470K J 1/16W	
R142			RK736B1J222J	CHIP R 2.2K J 1/16W		R207			RK736B1J202J	CHIP R 1.0K J 1/16W	
R143			RK736B1J471J	CHIP R 470 J 1/16W		R208			RK736B1J182J	CHIP R 1.8K J 1/16W	
R144			RK736B1J101J	CHIP R 100 J 1/16W		R209			RK736B1J242J	CHIP R 47K J 1/16W	
R145			RK736B1J252-05	CHIP R 0 OHM		R210			RK736B1J331J	CHIP R 330 J 1/16W	
R146			RK736B1J222J	CHIP R 2.2K J 1/16W		R211			RK736B1J104J	CHIP R 100K J 1/16W	
R147			RK736B1J103J	CHIP R 100 J 1/16W		R212			RK736B1J332J	CHIP R 33K J 1/16W	
R148			RK736B1J252-05	CHIP R 0 OHM		R213			RK736B1J334J	CHIP R 330K J 1/16W	
R149,150			RK736B1J104J	CHIP R 100K J 1/16W		R214,215			RK736B1J332J	CHIP R 33K J 1/16W	
R151			RK736B1J151J	CHIP R 150 J 1/16W		R216			RK736B1J102J	CHIP R 1.0K J 1/16W	
R152			RK736B1J104J	CHIP R 100K J 1/16W		R217			RK736B1J252-05	CHIP R 820 J 1/4W	
R153			RK736B1J104J	CHIP R 180K J 1/16W		R218			RK736B1J103J	CHIP R 10K J 1/16W	
R154			RK736B1J222J	CHIP R 2.2K J 1/16W		R219			RK736B1J252-05	CHIP R 0 OHM	
R155			RK736B1J472J	CHIP R 4.7K J 1/16W		R220			RK736B1J182J	CHIP R 1.8K J 1/16W	
R156			RK736B1J104J	CHIP R 100K J 1/16W		R220			RK736B1J252-05	CHIP R 0 OHM	E,E3
R157			RK736B1J220J	CHIP R 22 J 1/16W		R220			RK736B1J252-05	CHIP R 0 OHM	M2,M4
R158			RK736B1J102J	CHIP R 1.0K J 1/16W		R221			RK736B1J333J	CHIP R 33K J 1/16W	
R159			RK736B1J470J	CHIP R 470 J 1/16W		R223			RK736B1J104J	CHIP R 100K J 1/16W	
R160			RK736B1J472J	CHIP R 4.7K J 1/16W		R225			RK736B1J104J	CHIP R 100K J 1/16W	
R161,162			RK736B1J252-05	CHIP R 0 OHM		R250,251			RK736B1J222J	CHIP R 2.2K J 1/16W	
R163,164			RK736B1J221J	CHIP R 220 J 1/16W		R252			RK736B1J252-05	CHIP R 0 OHM	
R165			RK736B1J152J	CHIP R 1.5K J 1/16W		R253			RK736B1J104J	CHIP R 100K J 1/16W	E,E3
R166			RK736B1J472J	CHIP R 4.7K J 1/16W		R253			RK736B1J104J	CHIP R 100K J 1/16W	M2,M4
R168			RK736B1J471J	CHIP R 470 J 1/16W		R254,255			RK736B1J242J	CHIP R 820 J 1/10W	
R172			RK736B1J102J	CHIP R 1.0K J 1/16W	K	R501			RK736B1J472J	CHIP R 4.7K J 1/16W	
R172			RK736B1J473J	CHIP R 47K J 1/16W	E,E3	R502			RK736B1J252-05	CHIP R 0 OHM	
R172			RK736B1J103J	CHIP R 10K J 1/16W		R502			RK736B1J104J	CHIP R 100K J 1/16W	
R172			RK736B1J473J	CHIP R 47K J 1/16W	M2,M4	R506			RK736B1J103J	CHIP R 10K J 1/16W	
R173			RK736B1J472J	CHIP R 4.7K J 1/16W		R507			RK736B1J222J	CHIP R 1.2K J 1/16W	
R174,175			RK736B1J223J	CHIP R 2.2K J 1/16W		R508			RK736B1J102J	CHIP R 1.0K J 1/16W	
R176			RK736B1J222J	CHIP R 2.2K J 1/16W		R509			RK736B1J103J	CHIP R 10K J 1/16W	
R177			RK736B1J220J	CHIP R 22 J 1/16W		R510,511			RK736B1J473J	CHIP R 47K J 1/16W	
R178			RK736B1J470J	CHIP R 47 J 1/16W		R512			RK736B1J562J	CHIP R 5.8K J 1/16W	
R179,180			RK736B1J101J	CHIP R 100 J 1/16W		R513			RK736B1J102J	CHIP R 1.0K J 1/16W	
R181			RK736B1J102J	CHIP R 1.0K J 1/16W		R514			RK736B1J223J	CHIP R 2.2K J 1/16W	
R182			RK736B1J252-05	CHIP R 0 OHM		R515			RK736B1J623J	CHIP R 82K J 1/16W	
R183,184			RK736B1J331J	CHIP R 330 J 1/16W		R516			RK736B1J560J	CHIP R 560K J 1/16W	
R185			RK736B1J124J	CHIP R 120K J 1/16W	E,E3	R517			RK736B1J684J	CHIP R 880K J 1/16W	
R186			RK736B1J124J	CHIP R 120K J 1/16W	M2,M4	R521			RK736B1J394J	CHIP R 330K J 1/16W	
R186			RK736B1J103J	CHIP R 10K J 1/16W		R522			RK736B1J473J	CHIP R 47K J 1/16W	
R187			RK736B1J473J	CHIP R 47K J 1/16W		R523			RK736B1J104J	CHIP R 100K J 1/16W	
R188			RK736B1J103J	CHIP R 10K J 1/16W		R524			RK736B1J103J	CHIP R 10K J 1/16W	

# TM-G707A/E

## PARTS LIST

TX-RX UNIT (X57-557X-XX)

Ref. No.	Address	New parts	Parts No.	Description	Destination	Ref. No.	Address	New parts	Parts No.	Description	Destination
R525,526			RK736B1J102J	CHIP R 1.0K J 1/16W		R604			RK736B1J104J	CHIP R 100K J 1/16W	
R527			RK736B1J473J	CHIP R 47K J 1/16W		R605			RK736B1J103J	CHIP R 10K J 1/16W	
R528			RK736B1J103J	CHIP R 10K J 1/16W		R606			RK736B1J102J	CHIP R 1.0K J 1/16W	
R529			RK736B1J823J	CHIP R 82K J 1/16W		R607			RK736B1J474J	CHIP R 470K J 1/16W	
R530,531			RK736B1J222J	CHIP R 2.2K J 1/16W		R608			RK736B1J101J	CHIP R 100 J 1/16W	
R532			RK736B1J473J	CHIP R 47K J 1/16W	KM2,M4	R609			RK2-1752-05	CHIP R 0 OHM	
R533			RK736B1J684J	CHIP R 680K J 1/16W		R610			RK736B1J473J	CHIP R 47K J 1/16W	
R535			RK736B1J473J	CHIP R 47K J 1/16W		R611			RK736B1J103J	CHIP R 1.0M J 1/16W	E,E3
R536			RK736B1J103J	CHIP R 10K J 1/16W		R612			RK736B1J104J	CHIP R 100K J 1/16W	E,E3
R537			RK736B1J472J	CHIP R 4.7K J 1/16W		R614			RK736B1J471J	CHIP R 470 J 1/16W	E,E3,M2,M4
R538,539			RK736B1J473J	CHIP R 47K J 1/16W		R615			RK736B1J473J	CHIP R 47K J 1/16W	
R540			RK736B1J103J	CHIP R 10K J 1/16W		R616			RK736B1J103J	CHIP R 10K J 1/16W	KM2,M4
R541			RK736B1J194J	CHIP R 180K J 1/16W	KM2,M4	W1791	3A		R31-0019-05	VARIABLE RESISTOR(10K/SQL/50K)	
R541			RK736B1J1394J	CHIP R 390K J 1/16W	E,E3	S501			S70-0424-05	TACT SWITCH(HARD RESET)	
R542			RK736B1J104J	CHIP R 100K J 1/16W	KM2,M4	S701	3B		S70-0487-05	TACT SWITCH(BAND)	
R543			RK736B1J103J	CHIP R 10K J 1/16W	KM2,M4	D1,2			MA25077	DIODE	
R544			RK736B1J473J	CHIP R 47K J 1/16W		D3,4			MA25111	DIODE	
R545			RK736B1J274J	CHIP R 270K J 1/16W		D5			1S3365	DIODE	
R545			RK2-0570-05	CHIP R 0 OHM	M4,E,E3	D6			MA25077	DIODE	
R547,548			RK2-1252-05	CHIP R 0 OHM		D9-9			1S3355	DIODE	
R549			RK2-0570-05	CHIP R 0 OHM	E,E3	D10			1S3355	DIODE	
R550			RK2-0070-05	CHIP R 0 OHM	KM2	O11,12			DA221	DIODE	
R551			RK2-0070-05	CHIP R 0 OHM	K,E,E3	O13			HV0131	DIODE	
R552			RK736B1J1394J	CHIP R 330K J 1/16W		O14-16			MA491633	DIODE	
R554			RK736B1J473J	CHIP R 47K J 1/16W		O17,18			MR009	DIODE	
R555			RK736B1J123J	CHIP R 12K J 1/16W		O19-21			MA742	DIODE	
R556			RK736B1J232J	CHIP R 22K J 1/16W		O22			1A9222	DIODE	
R557			RK736B1J104J	CHIP R 100K J 1/16W		O23			MA742	DIODE	
R558			RK736B1J473J	CHIP R 47K J 1/16W	KM2,M4	O24			UD2186B	ZENER DIODE	
R559			RK736B1J272J	CHIP R 8.2K J 1/16W		O25			UD2186B	ZENER DIODE	
R560			RK736B1J123J	CHIP R 12K J 1/16W		O26			MA742	DIODE	
R562			RK736B1J823J	CHIP R 6.8K J 1/16W		O27			MA25077	DIODE	
R563			RK736B1J473J	CHIP R 47K J 1/16W		O28,29			HV1359	VARIABLE CAPACITANCE DIODE	
R567			RK736B1J104J	CHIP R 270K J 1/16W	E,E3	O30			MA25077	DIODE	
R568			RK736B1J473J	CHIP R 47K J 1/16W		O31			HV1360	VARIABLE CAPACITANCE DIODE	
R569			RK736B1J272J	CHIP R 8.2K J 1/16W		O33			DA222	DIODE	
R571			RK736B1J473J	CHIP R 47K J 1/16W		O34,35			1S3365	DIODE	
R572			RK736B1J123J	CHIP R 12K J 1/16W		O37,38			MA23077	DIODE	
R574,575			RK736B1J223J	CHIP R 220K J 1/16W		O39			MA742	DIODE	
R576			RK736B1J102J	CHIP R 1.0K J 1/16W		O40,41			DS3596A1	DIODE	
R577			RK2-1252-05	CHIP R 0 OHM		O42,43			HV0131	DIODE	
R578			RK736B1J102J	CHIP R 1.0K J 1/16W		O501			1S3365	DIODE	
R579,580			RK736B1J103J	CHIP R 10K J 1/16W		O502			1D7.5B	ZENER DIODE	
R581			RK736B1J473J	CHIP R 47K J 1/16W		O503			MA1112	DIODE	
R582			RK736B1J124J	CHIP R 120K J 1/16W		O504,505			MA25111	DIODE	
R583			RK736B1J102J	CHIP R 1.0K J 1/16W		O506,507			1S3365	DIODE	
R584			RK736B1J303J	CHIP R 10K J 1/16W		O508,509			DA221	DIODE	
R585			RK736B1J472J	CHIP R 47K J 1/16W		I2,3			MB1511PFV-5BND	ICPLL FREQUENCY SYNTHESIZER	
R585,587			RK736B1J473J	CHIP R 47K J 1/16W		I2,3			TC7W66FU	IC	
R588			RK736B1J102J	CHIP R 1.0K J 1/16W		I4			KO198	ICQVHF VCO	
R589,590			RK736B1J303J	CHIP R 33 J 1/16W		I5			KO198	ICQUHF VCO	
R590			RK736B1J102J	CHIP R 1.0K J 1/16W		I5			TA715501F	IC(DP AMP)	
R591			RK736B1J303J	CHIP R 39K J 1/16W		I6			BU2096FS	IC(SHIFT/STORE REGISTER)	
R592,594			RK736B1J473J	CHIP R 47K J 1/16W		I8			TK10530V	IC	
R595			RK736B1J102J	CHIP R 1.0K J 1/16W		I9			TC4W55FU	IC2 INPUT NAND GATE	
R596			RK736B1J303J	CHIP R 33 J 1/16W		I10			TA78L05F	IC(VOLTAGE REGULATOR/+5V)	
R597,598			RK736B1J102J	CHIP R 1.0K J 1/16W		I10			TA78L06F	IC(VOLTAGE REGULATOR/-5V)	
R598			RK2-1252-05	CHIP R 0 OHM		I501					
R600			RK736B1J100J	CHIP R 10 J 1/16W		I502			TA78L05F	IC(VOLTAGE REGULATOR/+5V)	
R601			RK736B1J224J	CHIP R 220K J 1/16W		I503			PS7130NIR	IC(SYSTEM RESET)	
R602			RK736B1J104J	CHIP R 100K J 1/16W		I504			NA2641P	IC(D/A CONVERTER)	
R603			RK736B1J102J	CHIP R 10K J 1/16W		I505			LC7381M	IC(DTMF DECODE)	KM2,M4

## PARTS LIST

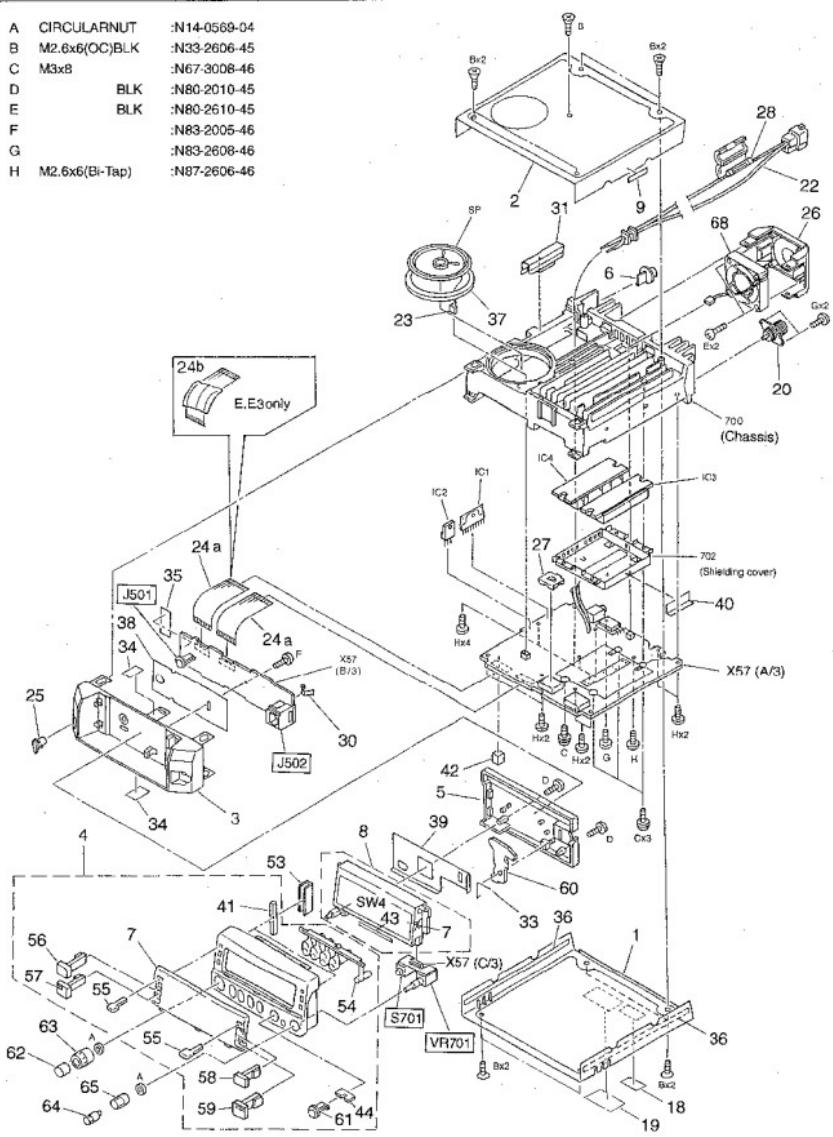
TX-RX UNIT (X57-557X-XX)

Ref. No.	Address	New part	Parts No.	Description	Destination
I5506			AK2343	IDC(TSS3 ENCODER/DECODER)	
I5507			BU4068BC	ID(ANALOG SWITCH X4)	
I5508	*		780560C-A768BT	ID(CPU)	K
I5508	*		780560C-A718BT	ID(CPU)	EE3
I5508			780560C-A718BT	ID(CPU)	M2,M4
I5509			TA25339F	IC	
I5510			TC74HC4050AF	ID(BUFFER CONVERTER)	
I5511	*		X25330SB-2.5	ID(EPPROM)	
Q1			DTD143EK	DIGITAL TRANSISTOR	
Q2			2SC4738G(R)	TRANSISTOR	
Q3,4			2SC4619P(D)	TRANSISTOR	
Q5			2SA1832(GR)	TRANSISTOR	
Q6			2SC4738G(R)	TRANSISTOR	
Q11			FM45	TRANSISTOR	
Q12			2SC4617(R)	TRANSISTOR	
Q13			2SC5109(Y)	TRANSISTOR	
Q14			2SC5066(D)	TRANSISTOR	
Q15			2SC4093	TRANSISTOR	
Q16			2SC4988	TRANSISTOR	
Q17			2SC3557	TRANSISTOR	
Q18,19			2SC1954	TRANSISTOR	
Q20			2SB1526(F)	TRANSISTOR	
Q21			2SC4617(R)	TRANSISTOR	
Q22			DTG144EU	DIGITAL TRANSISTOR	
Q23			2SC4617(R)	TRANSISTOR	
Q24			2SP1132(P)	TRANSISTOR	
Q25			DTG114EE	DIGITAL TRANSISTOR	
Q26			2SA1962(Y)	TRANSISTOR	
Q27,28			2SB1132(P)	TRANSISTOR	
Q29,30			2SA1962(Y)	TRANSISTOR	
Q31,32			FM45	TRANSISTOR	
Q33			3SK239A	FET	
Q34,35			2SC5066(D)	TRANSISTOR	
Q36			3SK239A	FET	
Q37			2SK241(R)	FET	
Q38			DTG114EE	DIGITAL TRANSISTOR	
Q39			2SC5066(D)	TRANSISTOR	
Q40			3SK239A	FET	
Q42,44			DTG114EE	DIGITAL TRANSISTOR	
Q45,46			2SA2024M	FET	
Q47			2SK879(Y)	FET	
Q48,49			2SC4617(P,D)	TRANSISTOR	
Q50			2SK1824	FET	
Q51			DTG114EE	DIGITAL TRANSISTOR	
Q52			2SC4738(GR)	TRANSISTOR	
Q53			2SP1132(R)	TRANSISTOR	
Q54			2SC4617(R)	TRANSSTOR	
Q55			2SK1824	FET	EE3
Q56			2SK1824	FET	M2,M4
Q56,57			2SK1824	FET	EE3
Q57			2SK1824	FET	M2,M4
Q58			DTG114EE	DIGITAL TRANSISTOR	EE3
Q62			DTG114EE	DIGITAL TRANSISTOR	M2,M4
Q60,61			2SC4738(GR)	TRANSISTOR	
Q62			2SA1919	TRANSISTOR	
Q63			2SC4738(GR)	TRANSISTOR	
Q64			DTG114EE	DIGITAL TRANSISTOR	EE1,M2,M4
Q65,598			2SA2028(GR)	TRANSISTOR	
TH1			157-153-65001	TERMOSTAT(15K)	

TM-G707A/E

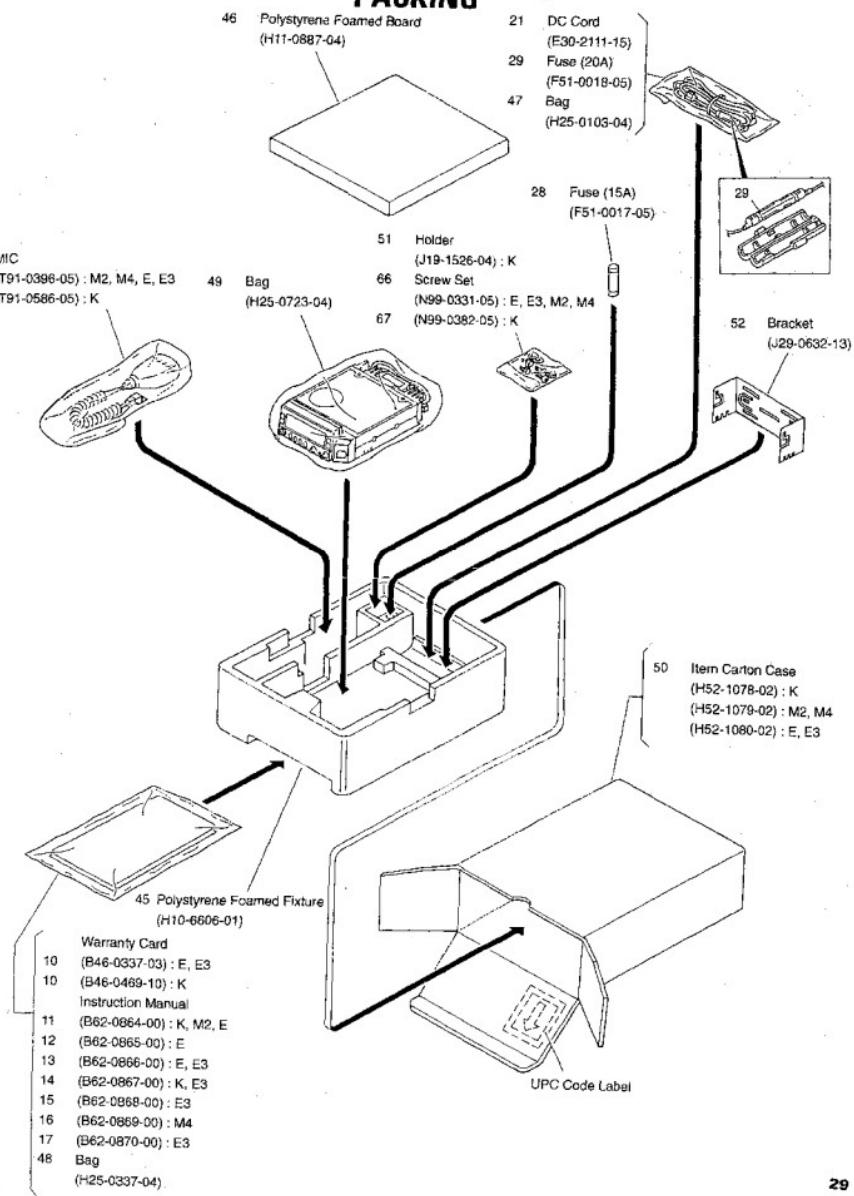
## **EXPLODED VIEW**

A	CIRCULARNUT	:N14-0560-04
B	M2.6x6(OC)BLK	:N33-2606-45
C	M3x8	:N67-3008-46
D	BLK	:N80-2010-45
E	BLK	:N80-2610-45
F		:N83-2005-46
G		:N83-2608-46
H	M2.6x6(Bi-Tap)	:N87-2606-46



Beds with the exploded numbers larger than 700 are not supplied.

## PACKING



## ADJUSTMENT

### Measuring Equipment for Adjustment

#### 1. Digital voltmeter (D.V.M)

Input impedance: High

#### 2. RF valve voltmeter (RF V.M.)

Input impedance:  $1M\Omega$  or more,  $2pF$  or less

Voltage range: Full scale =  $10mV$  to  $300V$

Measurable frequency range: up to  $450MHz$

#### 3. Frequency counter (f.counter)

Input sensitivity: About  $50mV$

Measurable frequency:  $450MHz$  or more

#### 4. DC power supply

Voltage: Variable in the range 10 to  $17V$

Current:  $13A$  or more

#### 5. Power meter

Measurement power:  $60W$ ,  $30W$ ,  $10W$

Impedance:  $50\Omega$

Measurable frequency:  $450MHz$

#### 6. AF valve voltmeter (AF V.M.)

Input impedance:  $1M\Omega$  or more

Voltage range: Full scale =  $1mV$  to  $30V$

Measurable frequency range:  $50Hz$  to  $10kHz$

#### 7. AF generator (AG)

Output frequency:  $100Hz$  to  $10kHz$

Output voltage:  $0.5mV$  to  $1V$

#### 8. Linear detector

Measurable frequency:  $450MHz$

#### 9. Spectrum analyzer

Measurable frequency:  $450MHz$

#### 10. Directional coupler

#### 11. Oscilloscope

High sensitivity with horizontal input terminal

#### 12. Standard signal generator (SSG)

The standard signal generator must be able to generate the  $1GHz$  band frequencies and vary the amplitude and frequency.

Output:  $-133dBm$  to greater than  $-13dBm$

#### 13. Dummy load (for AF)

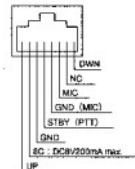
$8\Omega$ , about  $5W$

#### 14. Distortion meter

#### 15. Adjustment jig

### Preparation

#### • Microphone connector



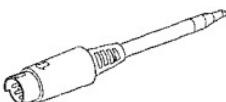
**Microphone socket  
(as viewed from the front of the set)**

- Use an insulated rod, such as a plastic rod, for adjustment (especially for trimmers, coils, etc.).
- To protect the signal generator, never connect the microphone to the microphone socket when the receiver section is adjusted.
- Before the power cord is connected, make sure the power switch is off.
- Without specification of SSG, standard modulation is applied (MOD :  $1kHz$ , DEV :  $\pm 3kHz$ , AF output :  $0.63V/8\Omega$ )
- See the instruction manual for transmit and receive operations.
- Use service jigs as necessary.
- It is good to copy critical data with clone operations before making adjustments. For details on clone operations, see "Reference" on Page 39.

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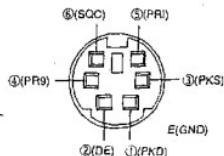
## ADJUSTMENT

### Adjustment Service Jig

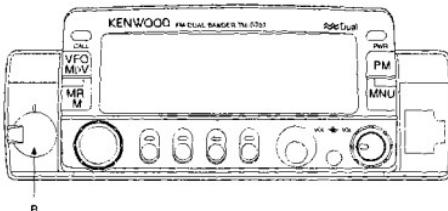


Data terminal short plug (W05-0611-00)

#### Service jigs usage



Pin assignment seen from direction B



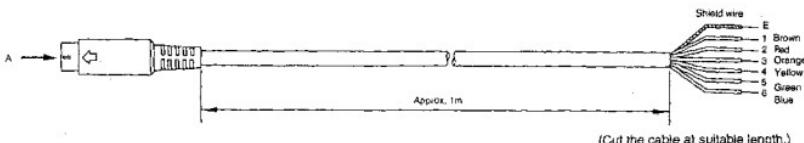
Short plug

Terminals ③ and ⑥ are short circuited.

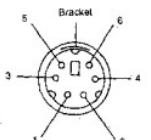
[Reference] ③ PKS (SEND switch for DATA terminal)  
Connect PTT output. If PKS is set to "L",  
data are sent and the microphone will be mute.  
⑥ SQC (Squelch control output)  
This outputs squelch control output.

#### Service jigs specification

Plug cable with 6P mini-DIN : Model PG-5A (cable parts No. : E30-3202-05) processed like under fig.



(Cut the cable at suitable length.)

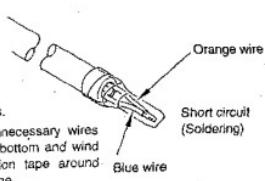


Pin assignment seen from direction A

DIN pin No.	Color
1	Brown
2	Red
(3)	Orange
4	Yellow
5	Green
(6)	Blue
Bracket	Shield

Join these DIN pins.

Cut unnecessary wires  
at the bottom and wind  
insulation tape around  
top edge.

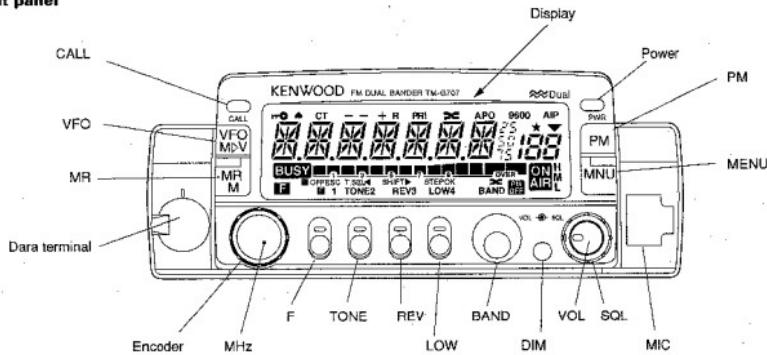


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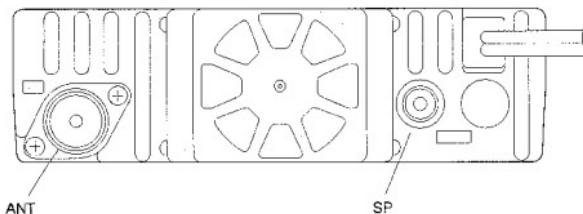
## ADJUSTMENT

### Parts layout

#### Front panel



#### Rear panel



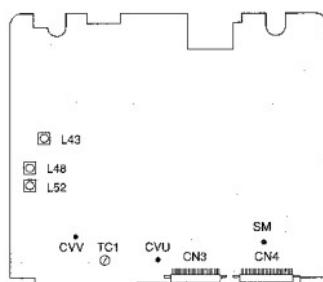
### Adjustment parts layout

#### ● TX-RX UNIT (Unit under)

- Adjustment parts No.  
TC1: Transmission frequency (UHF)  
L43 : BPF(VHF)  
L48 : BPF(VHF)

#### ● Test point

- CVV : VCO lock voltage (VHF)  
CVU : VCO lock voltage (UHF)  
SM : BPF



# ADJUSTMENT

## Adjustment mode

- This is the adjustment mode for making adjustments or setting levels.
- The following items can be adjusted or set.
  - A Squelch release sensitivity (SCL)
  - B S meter light-up start level (S-1)
  - C S meter all light-up level (S.ALL.)
  - D Transmission output (TX.POW.)
  - E Transmission modulation factor (DEVI.)
  - F VHF BPF (B.P.F.1, B.P.F.2, B.P.F.3, B.P.F.4)

## Adjustment mode startup method

1. Switch OFF [POWER] and insert the adjustment plug at the set data terminal.
2. Switch ON [POWER] while pressing the [F] key and the [TONE] key at the same time.
3. When the set goes into adjustment mode, the "T." mark is displayed at the head of the frequency display.  
See the figure below.



**Adjustment mode display**

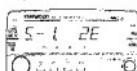
4. In adjustment mode, the desired band and frequency can be selected with [VFO], [MR], [ENCODER], [MHz] and [BAND]. You can also switch the transmission output with the [LOW] key.
5. When you press the [MNU] key, the set goes into adjustment enabled mode.
6. Pressing the [ $\blacktriangleleft$ ] or [ $\triangleright$ ] key switches the adjustment item to the previous item or the next item among the six adjustment items A-F (9 adjustments).

- A. Squelch release sensitivity adjustment (values set independently for 144 MHz and 430 MHz)
- ① When [SOL] is displayed with the [ $\blacktriangleleft$ ] or [ $\triangleright$ ] key, the value currently input for the squelch level is displayed and the squelch level can be adjusted. (See the figure below.)



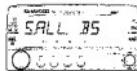
- ② In adjustment enabled mode, the [VFO] and [MR] keys function as the Up and Down keys, increasing/decreasing the frequency for VFO mode or the memory channel for MR mode.
- ③ When you apply the prescribed SSG input from the ANT terminal and press the [OK] key, the adjustment value is set and the adjustment mode moves to the next item. If you press the [ESC] key, the adjustment value is not set.

- B. S meter light-up start level (value set for each band)
- ① When you display [S-1] with the [ $\blacktriangleleft$ ] or [ $\triangleright$ ] key, the value currently input for the S meter is displayed and the value can be adjusted. (See the figure below.)



- ② When you apply the prescribed SSG input from the ANT terminal and press the [OK] key, the adjustment value is set.

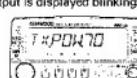
- C. S meter all light-up level (value set for each band)
- ① When you display "S.ALL." with the [ $\blacktriangleleft$ ] or [ $\triangleright$ ] key, the value currently input for the S meter is displayed and the value can be adjusted. (See the figure below.)



- ② When you apply the prescribed SSG input from the ANT terminal and press the [OK] key, the adjustment value is set and the adjustment mode moves to the next item.

- D. Transmission output (values set independently for 144 MHz and 430 MHz)

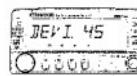
- ① After setting the frequency, switch to the desired output range with the [LOW] key.
- ② When you display "TX.POW." with the [ $\blacktriangleleft$ ] or [ $\triangleright$ ] key, the current setting for the output is displayed blinking. (See the figure below.)



- ③ Connect the power meter to the ANT terminal, then press the mic PTT switch to transmit. Turn the [ENCODER] knob to adjust the power meter reading to the prescribed output.
- ④ When the prescribed output is reached, switch the PTT switch off and press the [OK] key to set the adjustment value.

- E. Transmission modulation factor (values set independently for 144 MHz and 430 MHz)

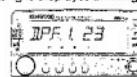
- ① When you display "DEVI." with the [ $\blacktriangleleft$ ] or [ $\triangleright$ ] key, the current setting is displayed blinking. (See the figure below.)



- ② Connect the direct wave detector and power meter to the ANT terminal, apply the prescribed A.G. input from the MIC input terminal, and transmit. Turn the [ENCODER] knob to adjust the direct wave detector reading to the prescribed value.
- ③ When the prescribed value is reached, stop transmission and press the [OK] key to set the adjustment value.

- F. VHF BPF adjustments (4 points: near 120MHz, 132MHz, 160MHz, and 170MHz)

- ① When you display any of "B.P.F.1," through "B.P.F.4" with the [ $\blacktriangleleft$ ] or [ $\triangleright$ ] key, the setting is displayed blinking. (See the figure below.)



BPF 4 EB

- ② Connect the signal generator to the ANT terminal and the digital voltmeter to the TX-RX unit (soilder side) SM terminal.
- ③ Apply a signal of the prescribed output with the specified frequency from the signal generator. Turn the [ENCODER] knob and adjust to maximize the voltage at the SM terminal.
- ④ When the maximum value is reached, press the [OK] key to set the adjusted value. Set "B.P.F.2", "B.P.F.3", and "B.P.F.4" in the same manner.

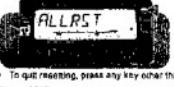
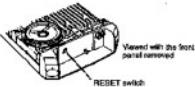
## Note:

- The [ENCODER] knob only works in frequency display and for transmission power, modulation factor, and BPF adjustments.
- When you press the [OK] key, the adjusted value is set and adjustment mode moves to the next item, but if you press the [ESC] key, the adjusted value is not set.
- To end adjustment mode, switch off the power.

# TM-G707A/E

## ADJUSTMENT

### Common section

Item	Condition	Measurement			Adjustment			Specifications/ Remarks
		Test- equipment	Unit	Terminal	Unit	Parts	Method	
1. Setting	1) Power voltage:13.8V 2) VOL, SQL knob:MIN							
2. Reset	<p><b>■ Partial Reset (VFO)</b> Use to initialize all settings except the memory channels, the Call channel, the FM channels, and Memory Channel Lockout.</p> <p>1) Press [VFO] &gt; POWER ON. • A confirmation message appears.</p>  <p>• To quit resetting, press any key other than [OK].</p> <p>2) Press [OK].</p>				<p><b>■ Full Reset (Memory)</b> Use to initialize all settings that you have customized.</p> <p>1) Press [MR] &gt; POWER ON. • A confirmation message appears.</p>  <p>• To quit resetting, press any key other than [OK].</p> <p>2) Press [OK].</p>			<p><b>■ Hard Reset</b> You can also use the RESET switch to initialize settings. Push the switch momentarily to do Partial Reset or press it for 1 second or longer to do Full Reset. No confirmation message appears. Use this switch when the microcomputer and/or the memory chip malfunction because of ambient factors.</p>  <p>Viewed with the front panel removed</p>
3. Lock voltage check	<p>1) VHF band FREQ.:146.050MHz:K,M FREQ.:145.050MHz:E</p> <p>2) UHF band FREQ.:444.050MHz:K FREQ.:435.050MHz:M,E</p> <p>3) UHF band FREQ.:443.980MHz:K FREQ.:434.980MHz:E transmission</p> <p>4) VHF band FREQ.:145.990MHz:K,M FREQ.:144.990MHz:E transmission</p>	D.V.M	TX-RX (A3)	CVV (TP6)	Check			about 2.5V
				CVU (TP7)				about 4.0V
			Rear panel TX-RX (A3)	ANT CVU (TP7)				about 3.0V
				CVV (TP6)				about 2.0V
4. BPF Adjust	1) FREQ.:146.050MHz:K,M FREQ.:145.050MHz:E SSG:-93dBm			TX-RX (A3)	L43 L48 L52	Voltage max	2.5V or more	
5. BPF Write	Switch to adjustment mode and carry out the operations for item F. SSG:-93dBm	SSG D.V.M	Rear panel TX-RX (A3)	ANT SM	Display Encoder [OK] key	UP/DOWN write	Voltage max	

## ADJUSTMENT

## Receiver section

Item	Condition	Measurement			Adjustment		Specifications/ Remarks
		Test- equipment	Unit	Terminal	Unit	Parts	
1. High level input S/N and distortion check	1) VHF band: FREQ.:146.050MHz;K,M FREQ.:146.050MHz;E SSG: -53dBm AF output:2.63V/8 Ω	SSG Oscilloscope AFV.M Distortion meter	Rear panel	ANT EXT.SP		Check	S/N 42dB or more Distortion rate:4% or less
	2) UHF band: FREQ.:444.050MHz;K FREQ.:435.050MHz;M,E SSG: -53dBm AF output:2.63V/8 Ω						
2. Sensitivity check	1) VHF band: FREQ.:146.050MHz;K,M FREQ.:145.050MHz;E FREQ.:144.050MHz; FREQ.:147.925MHz;K,M FREQ.:145.925MHz;E SSG: -12dBm;M,E SSG: -119dBm;K AF output:0.63V/8 Ω	SSG Distortion meter Oscilloscope AFV.M	Rear panel	ANT EXT.SP		Check	SINAD: 12dB or more
	2) UHF band: FREQ.:444.050MHz;K FREQ.:435.050MHz;M,E FREQ.:438.050MHz;K FREQ.:430.050MHz;M,E FREQ.:449.975MHz;K FREQ.:439.925MHz;M,E SSG: -12dBm AF output:0.63V/8 Ω						
3. Squelch write	Switch to adjustment mode and carry out the operations for Item A. 1) VHF band: FREQ.:146.050MHz;K,M FREQ.:146.050MHz;E SSG: -130dBm;M,E SSG: -127dBm;K	SSG	Rear panel	ANT EXP.SP	Display	[OK] key	Write
	2) UHF band: FREQ.:444.050MHz;K FREQ.:435.050MHz;M,E SSG: -130dBm						
4. Squelch check	1) VHF band: FREQ.:146.050MHz;K,M FREQ.:146.050MHz;E SSG OFF Set to the point where noise will be erased by turning the squelch knob.	SSG Oscilloscope	Rear panel	ANT EXP.SP	Display	Check	Knob position: 8:00 ~ 11:00 BUSY lights off.
	2) SSG: -126dBm;M,E SSG: -125dBm;K						Squelch open. BUSY lights on.
	3) Squelch knob: clockwise MAX						AF output disappear. BUSY lights off.
	4) UHF band: FREQ.:444.050MHz;K FREQ.:435.050MHz;M,E Set to the point where noise will be erased by turning the squelch knob.						Knob position: 8:00 ~ 11:00 Busy lights off.
	5) SSG: -126dBm						Squelch open. BUSY lights on.
	6) Squelch knob: clockwise MAX						AF output disappear. BUSY lights off.

# TM-G707A/E

## ADJUSTMENT

### Receiver section

Item	Condition	Measurement			Adjustment			Specifications/ Remarks
		Test- equipment	Unit	Terminal	Unit	Parts	Method	
5. S-meter write	Switch to adjustment mode and carry out the operations for Item B,C 1) 144MHz band (S-1) FREQ.:146.050MHz;K,M FREQ.:145.050MHz;E SSG:-118dBm	SSG	Rear panel	ANT	Display	[OK] key	Write	S-meter one segment (S1) lights on.
	2) 144MHz band (S,ALL) SSG:-96dBm							S-meter all segment (ALL) lights on.
	3) 430MHz band (S-1) FREQ.:444.050MHz;K FREQ.:435.050MHz;M,E SSG:-118dBm							S-meter one segment (S1) lights on.
	4) 430MHz band (S,ALL) SSG:-96dBm							S-meter all segment (ALL) lights on.
	5) 118MHz band (S-1) FREQ.:130.050MHz SSG:-100dBm							S-meter one segment (S1) lights on.
	6) 118MHz band (S,ALL) SSG:-83dBm							S-meter all segment (ALL) lights on.
	7) 300MHz band (S-1) FREQ.:370.100MHz SSG:-110dBm							S-meter one segment (S1) lights on.
	8) 300MHz band (S,ALL) SSG:-90dBm							S-meter all segment (ALL) lights on.
	9) 800MHz band (S-1) FREQ.:865.975MHz;K FREQ.:870.100MHz;M,E SSG:-105dBm							S-meter one segment (S1) lights on.
	10) 800MHz band (S,ALL) SSG:-85dBm							S-meter all segment (ALL) lights on.
6. S-meter check	1) FREQ.:146.050MHz;K,M FREQ.:145.050MHz;E FREQ.:444.050MHz;K FREQ.:435.050MHz;M,E SSG:-114 ~ -124dBm	SSG	Rear panel	ANT	Display	S-meter	Check	S-meter one segment (S1) lights on.
	2) FREQ.:146.050MHz;K,M FREQ.:145.050MHz;E FREQ.:444.050MHz;K FREQ.:435.050MHz;M,E SSG:-90 ~ -102dBm							S-meter all segment (ALL) lights on.

## ADJUSTMENT

## Transmission section

Item	Condition	Measurement			Adjustment			Specifications/ Remarks
		Test- equipment	Unit	Terminal	Unit	Parts	Method	
1. Transmission frequency Adjust	1) UHF band FREQ.:444.000MHz;K FREQ.:435.000MHz;M,E	t counter Dummy	Rear panel	ANT	TX/RX (A/G)	TC1	444.000MHz;K 435.000MHz;M,E	Not warm up the set. $\pm 500\text{Hz}$
2-1. POWER V-HF band write or check	For 1), 2) and 4), switch to adjustment mode and carry out the operations for item D 1) POWER:LOW FREQ.:146.000MHz;K,M FREQ.:144.975MHz;E Transmission.	Power meter Ammeter	Rear panel	ANT	Display	Encode [OK] key	UP/DOWN write	5.0W $\pm 0.5\text{W}$
	2) POWER: MID Transmission.							12W $\pm 1.0\text{W}$
	3) POWER: MAX Transmission.							48W or more
	4) POWER: HI Transmission.				Display	Encode [OK] key	UP/DOWN write	M4:22.5W $\pm 1.0\text{W}$ K,E,M2:MAX Power 52W or more. 50.0W $\pm 1.0\text{W}$ MAX Power 48W or more. (MAX Power = 2W) $\pm 1.0\text{W}$
	5) FREQ.:144.000MHz FREQ.:147.975MHz (K,M) FREQ.:145.975MHz (E) POWER: HI Transmission.							K,E,M2:44 ~ 80W M4:20 ~ 25W
	6) POWER: MID Transmission.							10 ~ 14W
	7) POWER: LOW Transmission.							3 ~ 10W
2-2. POWER UHF band write or check	For 1), 2) and 4), switch to adjustment mode and carry out the operations for item D 1) POWER:LOW FREQ.:444.000MHz;K FREQ.:435.000MHz;M,E Transmission.	Power meter	Rear panel	ANT	Display	Encode [OK] key	UP/DOWN write	5.0W $\pm 0.5\text{W}$
	2) POWER: MID FREQ.:438.000MHz;K FREQ.:430.000MHz;M,E Transmission.							12.0W $\pm 1.0\text{W}$
	3) POWER: MAX FREQ.:449.975MHz;K FREQ.:439.975MHz;M,E Transmission.							33W or more
	4) POWER: HI FREQ.:449.975MHz;K FREQ.:439.975MHz;M,E Transmission.				Display	Encode [OK] key	UP/DOWN write	M4:22.5W $\pm 1.0\text{W}$ K,E,M2:MAX Power 37W or more. 35.0W $\pm 1.0\text{W}$ MAX Power 33W or more. (MAX Power = 2W) $\pm 1.0\text{W}$
	5) FREQ.:438.000MHz;K FREQ.:430.000MHz;M,E FREQ.:449.975MHz;K FREQ.:439.975MHz;M,E POWER: HI Transmission.							K,E,M2:28 ~ 42W M4:20 ~ 25W
	6) POWER: MID Transmission.							10 ~ 14W
	7) POWER: LOW Transmission.							3 ~ 10W

# TM-G707A/E

## ADJUSTMENT

### Transmission section

Item	Condition	Measurement			Adjustment			Specifications/ Remarks
		Test- equipment	Unit	Terminal	Unit	Parts	Method	
3. DEV write or check	For 1) and 3), switch to adjustment mode and carry out the operations for item E. 1) VHF band FREQ.:146.000MHz:K,M FREQ.:144.975MHz:E AG:1kHz25mV/E AG:1kHz50mV/K,M Transmission	Power meter Linear detector Oscilloscope  AG AF V.M	Rear panel  MIC	ANT	Display	Encode [OK] key	UP/DOWN Write	$\pm 4.2\text{kHz} \pm 0.2\text{kHz}$
	2) Down AG output from the above state by 2dB (1kHz/2.5mV):E 2dB (1kHz/5.0mV):K,M Transmission						Check	$\pm 2.3 \sim 4.2\text{kHz}:E$ $\pm 2.4 \sim 4.1\text{kHz}:K,M$
	3) UHF band FREQ.:444.000MHz:K FREQ.:435.000MHz:M,E AG:1kHz25mV/E AG:1kHz50mV/K,M Transmission				Display	Encode [OK] key	UP/DOWN write	$\pm 4.2\text{kHz} \pm 0.2\text{kHz}$
	4) Down AG output from the above state by 2dB (1kHz/2.5mV):E 2dB (1kHz/5.0mV):K,M Transmission						Check	$\pm 2.3 \sim 4.2\text{kHz}:E$ $\pm 2.4 \sim 4.1\text{kHz}:K,M$
4. TONE DEV check	1) VHF band FREQ.:145.100MHz TONE:88.5Hz Transmission	Power meter Linear detector Oscilloscope	Rear panel	ANT			Check	$\pm 0.5 \sim 1.3\text{kHz}$
	2) UHF band FREQ.:445.100MHz:K FREQ.:435.100MHz:M,E TONE:88.5Hz Transmission							
5. Protection check	1) VHF band FREQ.:146.000MHz:K,M FREQ.:144.975MHz:E Power:H ANT:short circuit and open Transmission	Ammeter					Check	12.0A or less
	2) UHF band FREQ.:444.000MHz:K FREQ.:435.000MHz:M,E Power:H ANT:short circuit and open Transmission							12.0A or less

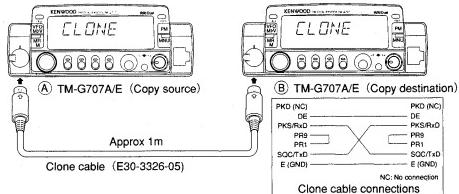
# TM-G707A/E

## ADJUSTMENT

### [Reference]

#### Clone operation method

##### ● Connection diagram



##### ● Operations

- ① Connect the data terminals on the copy source set and the copy destination set with the clone cable.
- ② Start the clone function on the copy destination set by switching on its power while holding down the [F] and [REV] keys. "CLONE" appears displayed.
- ③ Start the clone function on the copy source set by switching on its power while holding down the [F] and [REV] keys. "CLONE" appears displayed.
- ④ Press the [CALL] key on the copy source set to start data transfer. "SEND" is displayed.

**SEND**

- ⑤ When clone processing ends, [END] is displayed on the copy source set.

**END**

- ⑥ If clone processing fails, [ERROR] is displayed on the copy source set.

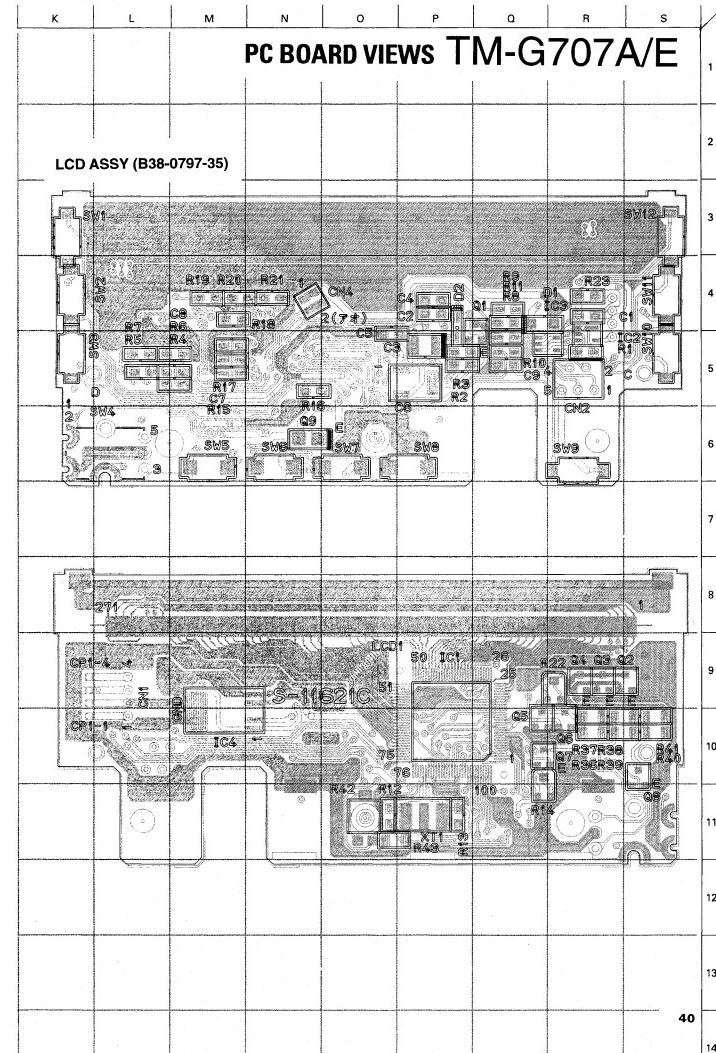
**ERROR**

- ⑦ Switching the power OFF, then ON again returns the sets to normal operation.

### Note:

- All the data in the copy destination set is overwritten.
- If clone operation are stopped midway, the data in the copy destination set may be lost.
- The two TM-G707 transceivers must be the same market versions to use the Clone function.

## PC BOARD VIEWS TM-G707A/E



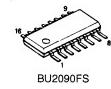
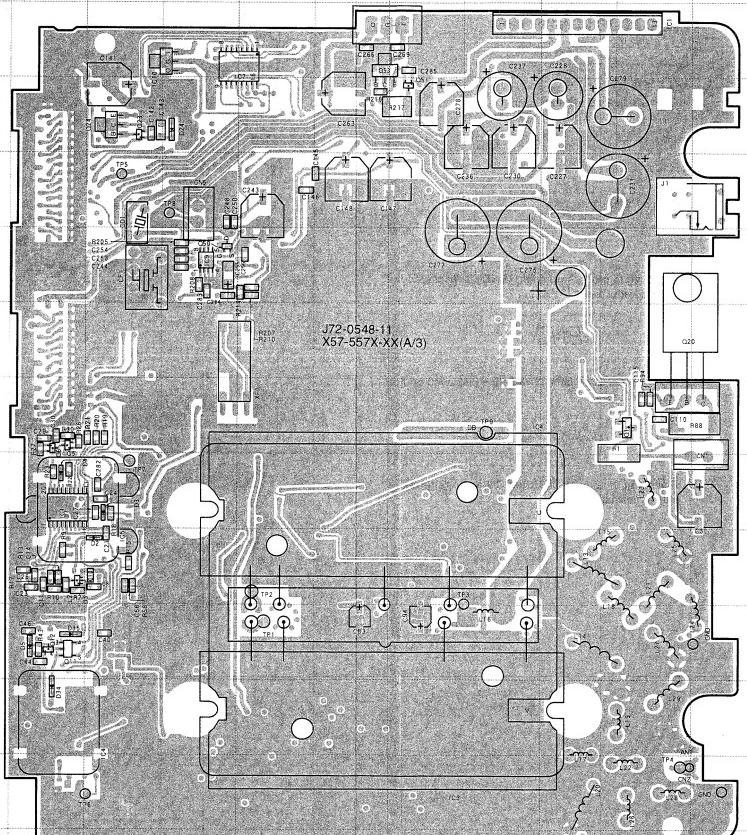
A B C D E F G H I J K L M N O P Q R S

# TM-G707A/E PC BOARD VIEW

TX-RX UNIT (A/3) (X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3 (Component side view)

TX-RX UNIT (A/3)  
(Component side)

Ref. NO.	Address
IC1	9F
IC4	12F
IC5	10G
IC7	3I
IC9	6H
IC10	3G
Q1	8N
Q3	10G
Q5	8F
Q6	8F
Q11	11G
Q12	11F
Q20	7O
Q23	4G
Q24	4G
Q50	6H
Q51	3K
Q53	3J
D2	10G
D3	9G
D4	9G
D5	11F
D24	4H
D34	12F
D35	11F

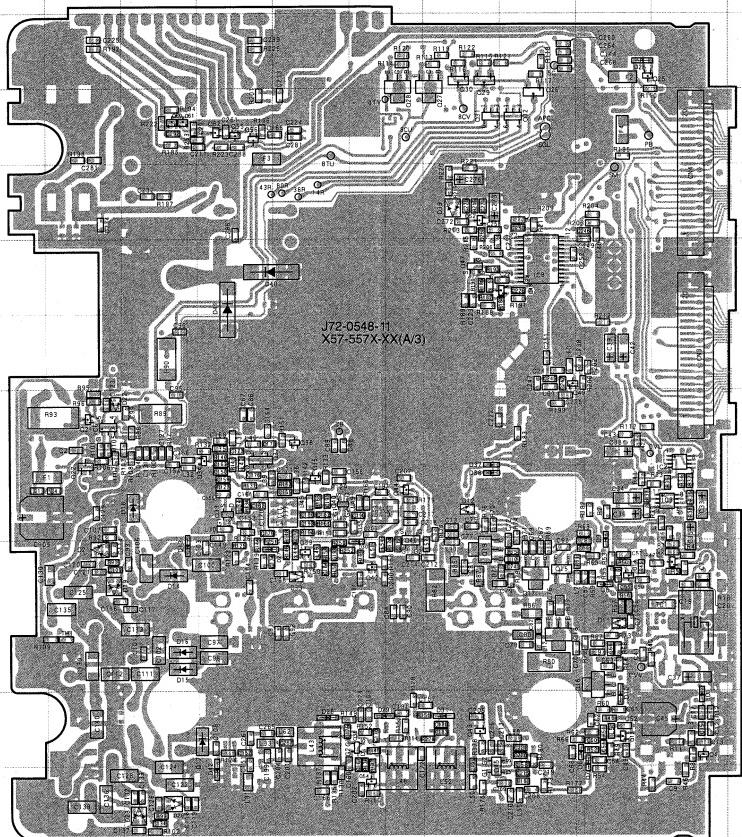
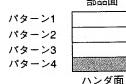


A B C D E F G H I J K L M N O P Q R S  
**PC BOARD VIEW TM-G707A/E**

**TX-RX UNIT (A/3) (X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3 (Foil side view)**

**TX-RX UNIT (A/3)  
(Foil side)**

Ref. NO.	Address
IC2	9N
IC3	9N
IC6	8G
IC8	6M
Q2	10N
Q4	13O
Q13	12N
Q14	10N
Q15	10M
Q16	12M
Q17	10L
Q18	11M
Q19	10L
Q21	8G
Q22	9F
Q25	4N
Q26	4M
Q27	4K
Q28	4K
Q29	4L
Q30	4L
Q31	4L
Q32	4L
Q33	9H
Q34	9H
Q35	9J
Q36	12J
Q37	9I
Q38	8I
Q39	10I
Q40	9J
Q42	10J
Q43	12L
Q44	9K
Q45	13L
Q46	10K
Q47	6L
Q48	6L
Q49	8M
Q52	5L
Q54	13J
Q55	4H
Q56	4H
Q60	4G
Q61	4H
Q62	4G
D1	12O
D6	13M
D7	13M
D8	10M
D9	10M
D10	12N
D11	11M
D12	9L
D13	10H



TK10930V



DA221



2SC4093



FMA5



2SB1132(Q,R)

2SC2954

2SC3357



2SK879(Y)

3SK241(R)



SGM2014M



DTC114EE

DTD144EU

2SA1362(Y)

2SC4619(P,Q)

2SC4738(GR)

2SC4617(R)

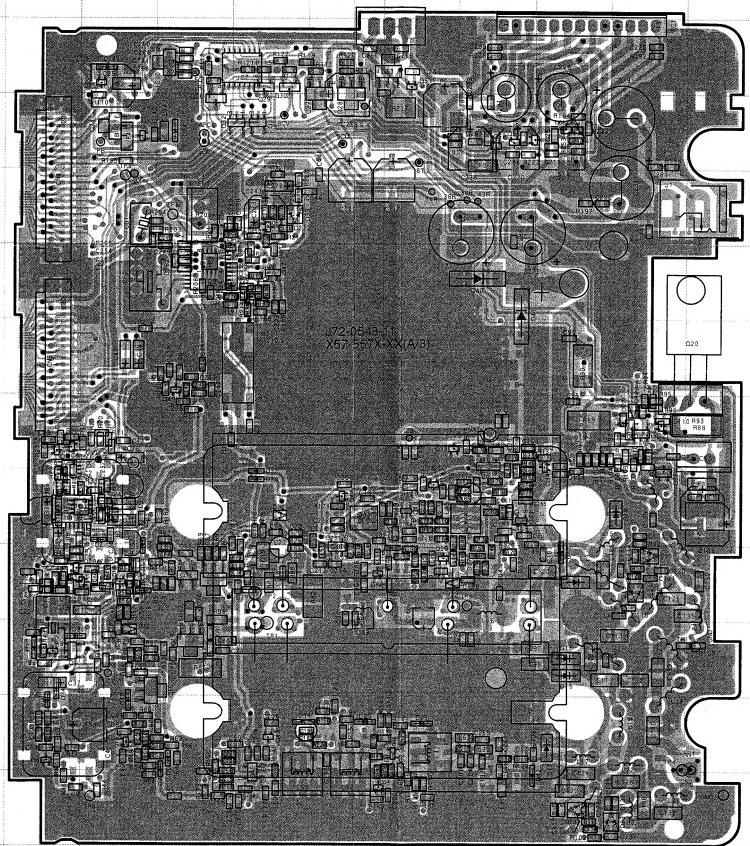
A B C D E F G H I J K L M N O P Q R S

# TM-G707A/E PC BOARD VIEW

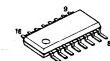
TX-RX UNIT (A/3) (X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3 (Component side view) + (Foil side view)

TX-RX UNIT (A/3)  
(Component side) + (Foil side)

Ref. NO.	Address
IC1	9G
IC2	9G
IC3	9G
IC4	12F
IC5	9G
IC6	8N
IC7	3I
IC8	6H
IC9	6H
IC10	3G
Q1	8N
Q2	10G
Q3	10G
Q4	13F
Q5	8F
Q6	8F
Q11	11G
Q12	11F
Q13	12G
Q14	10G
Q15	10H
Q16	12H
Q17	10I
Q18	11H
Q19	10I
Q20	7O
Q21	8N
Q22	9O
Q23	4G
Q24	4G
Q25	4G
Q26	4H
Q27	4J
Q28	4K
Q29	4I
Q30	4I
Q31	4I
Q32	4I
Q33	9M
Q34	9M
Q35	9K
Q36	12K
Q37	9L
Q38	8L
Q39	10L
Q40	9K
Q42	10K
Q43	12I
Q44	9J
Q45	13I
Q46	10J
Q47	6I
Q48	6I



DTC114EE  
DTC143EU  
DTD143EK  
2SA1362(Y)  
2SC1860(GR)  
2SC419(P,G)  
2SC4738(GR)  
2SC4617(R)



TK10930V



DA221



2SC4093



2SK879(Y)  
3SK241(R)



SGM2014M



Component side

Pattern 1

Pattern 2

Pattern 3

Pattern 4

Foil side

● Connect 1 and 4.

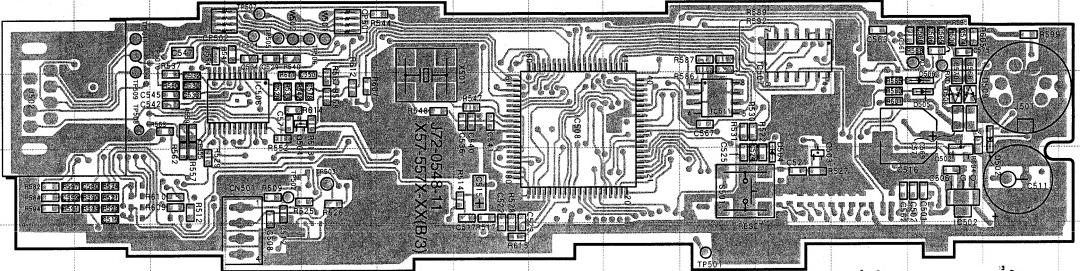
A B C D E F G H I J K L M N O P Q R S

# PC BOARD VIEW TM-G707A/E

**TX-RX UNIT (B/3) (X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3 (Component side view)**

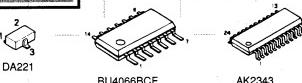
TX-RX UNIT (B/3)  
(Component side view)

Ref. NO.	Address
IC502	5O
IC506	4F
IC507	3M
IC508	4J
IC511	4L
Q502	5O
Q503	5M
Q504	4F
D502	4P
D504	5M
D505	4O
D506	4O
D508	4O
D509	4O



Component side  
Pattern 1  
Pattern 2  
Pattern 3  
Pattern 4

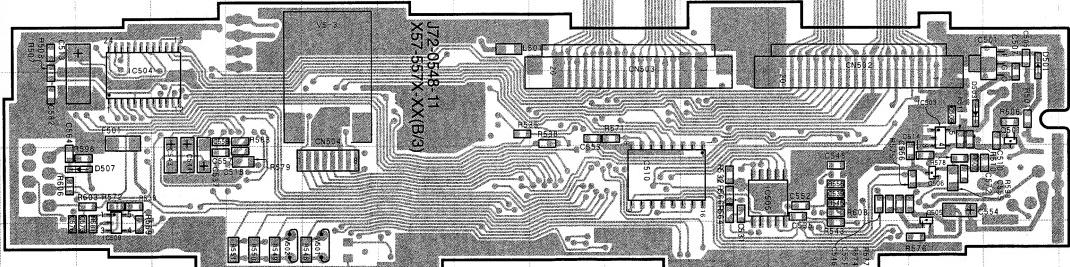
Foil side



**TX-RX UNIT (B/3) (X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3 (Foil side)**

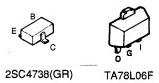
TX-RX UNIT (B/3)  
(Foil side)

Ref. NO.	Address
IC501	8P
IC503	9O
IC504	9D
Q506	10O
IC509	11D
IC510	10K
Q501	9P
Q505	11O
D501	9P
D503	9O
D507	10D



Component side  
Pattern 1  
Pattern 2  
Pattern 3  
Pattern 4

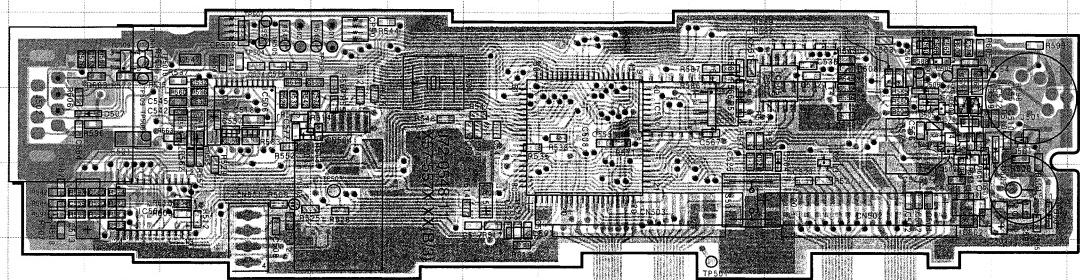
Foil side



A B C D E F G H I J K L M N O P Q R S

# TM-G707A/E PC BOARD VIEW

TX-RX UNIT (B/3) (X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3 (Component side view) + (Foil side view)

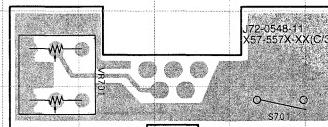


Component  
Pattern 1  
Pattern 2  
Pattern 3  
Pattern 4  
Foil side



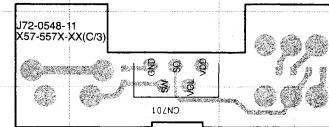
● Connect 1 and 4

TX-RX UNIT (C/3) (Component side view)  
(X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3



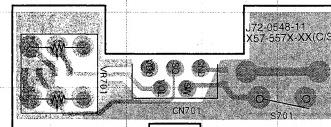
Component side  
Pattern 1  
Pattern 2  
Pattern 3  
Pattern 4  
Foil side

TX-RX UNIT (C/3) (Foil side)  
(X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3



Component side  
Pattern 1  
Pattern 2  
Pattern 3  
Pattern 4  
Foil side

TX-RX UNIT (C/3) (Component side view) + (Foil side view)  
(X57-557X-XX) 0-11:K, 0-22:M2, 0-24:M4, 2-71:E, E3



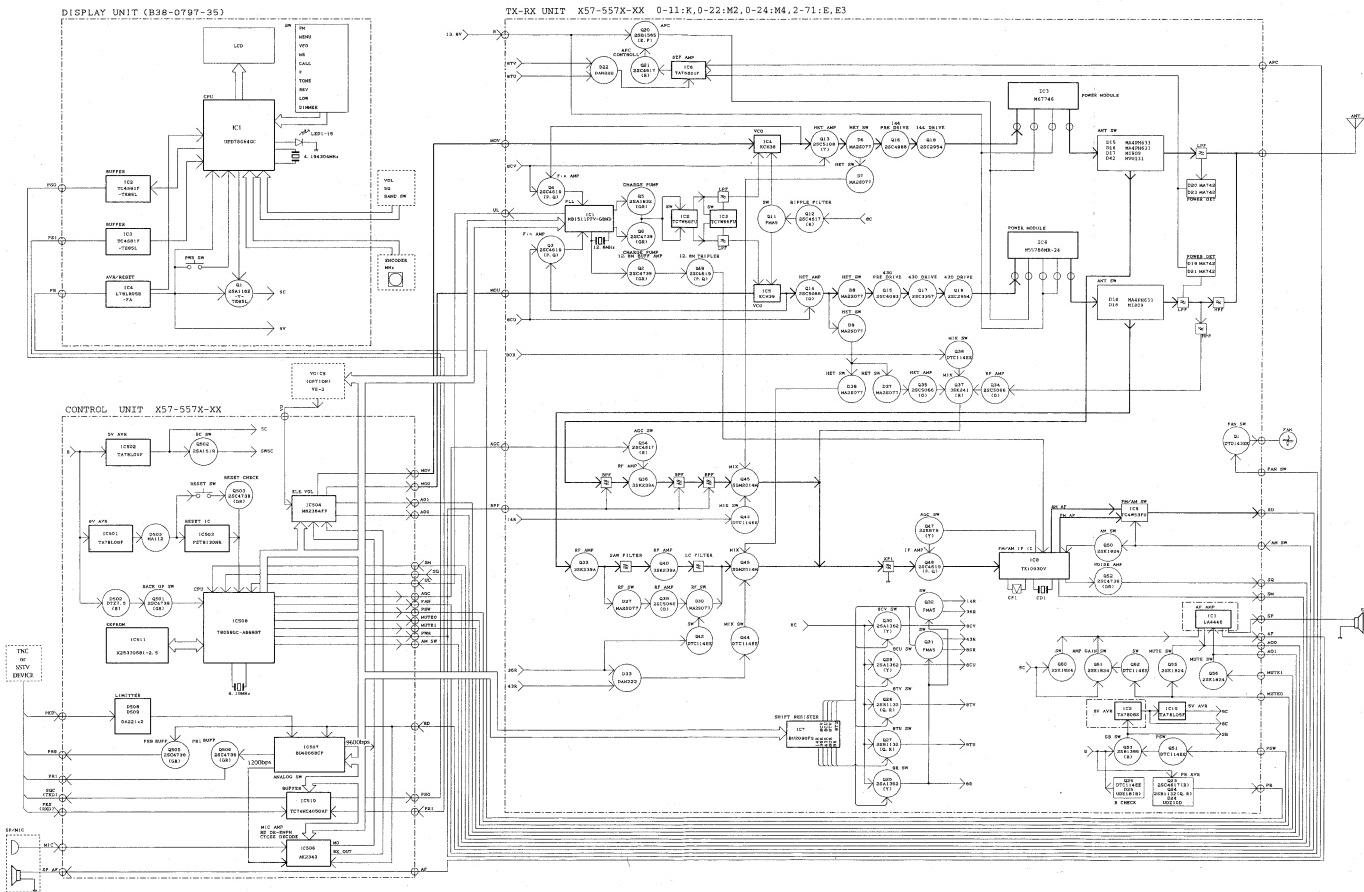
Component side  
Pattern 1  
Pattern 2  
Pattern 3  
Pattern 4  
Foil side

TX-RX UNIT (B/3)  
(Component side) + (Foil side)

Ref. NO.	Address
IC501	5P
IC502	5O
IC503	4O
IC504	5D
IC506	4F
IC507	3M
IC508	4J
IC509	3D
IC510	4K
IC511	4L
Q501	4P
Q502	5O
Q503	5M
Q504	4F
Q505	3O
Q506	1OO
D501	5P
D502	4P
D503	5O
D504	5M
D505	4O
D506	4O
D507	4D
D508	4O
D509	4O

TM-G707A/E TM-G707A/E

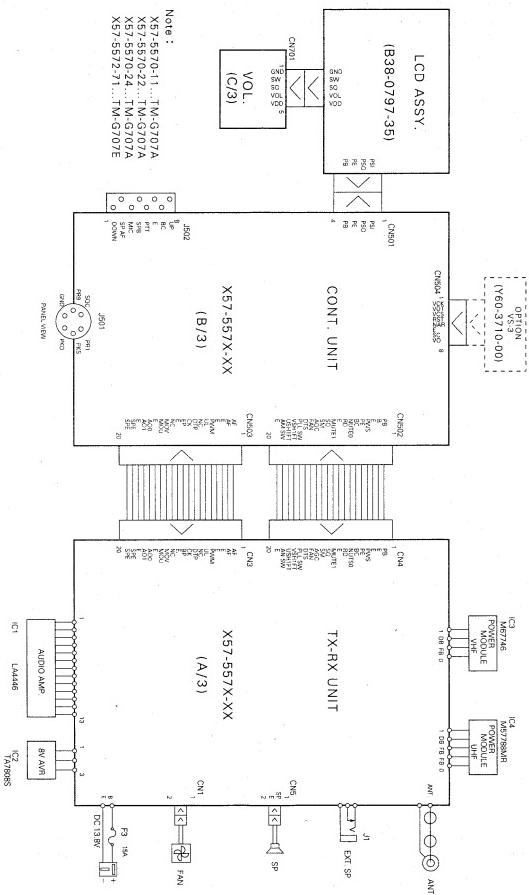
## BLOCK DIAGRAM



TM-G707A/E

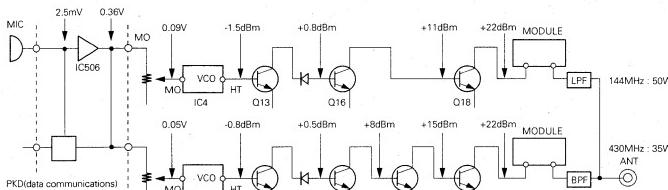
# TM-G707A/E

## **WIRING DIAGRAM**



## LEVEL DIAGRAM

## Transmitter Section



Note 1: Set the AG so that the microphone socket input is 3kHz deviation at 1kHz modulation.

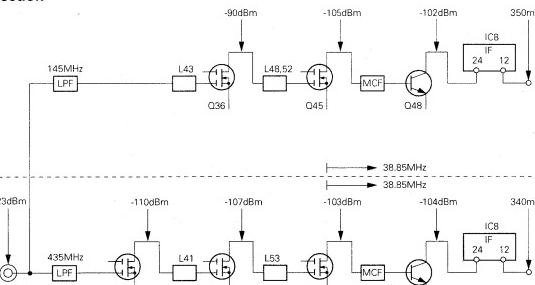
The data communication connector input level is 3kHz deviation at 1kHz modulation for 1200bps and 2kHz deviation at 1kHz modulation for 9600bps.

Note 2: The transmit frequency is 145.0 or 435.0MHz.

### Note 3: The HI/MID/LC

Note 4: The measurements with the power meter, except for the ANT connector, are the values with the APC off.

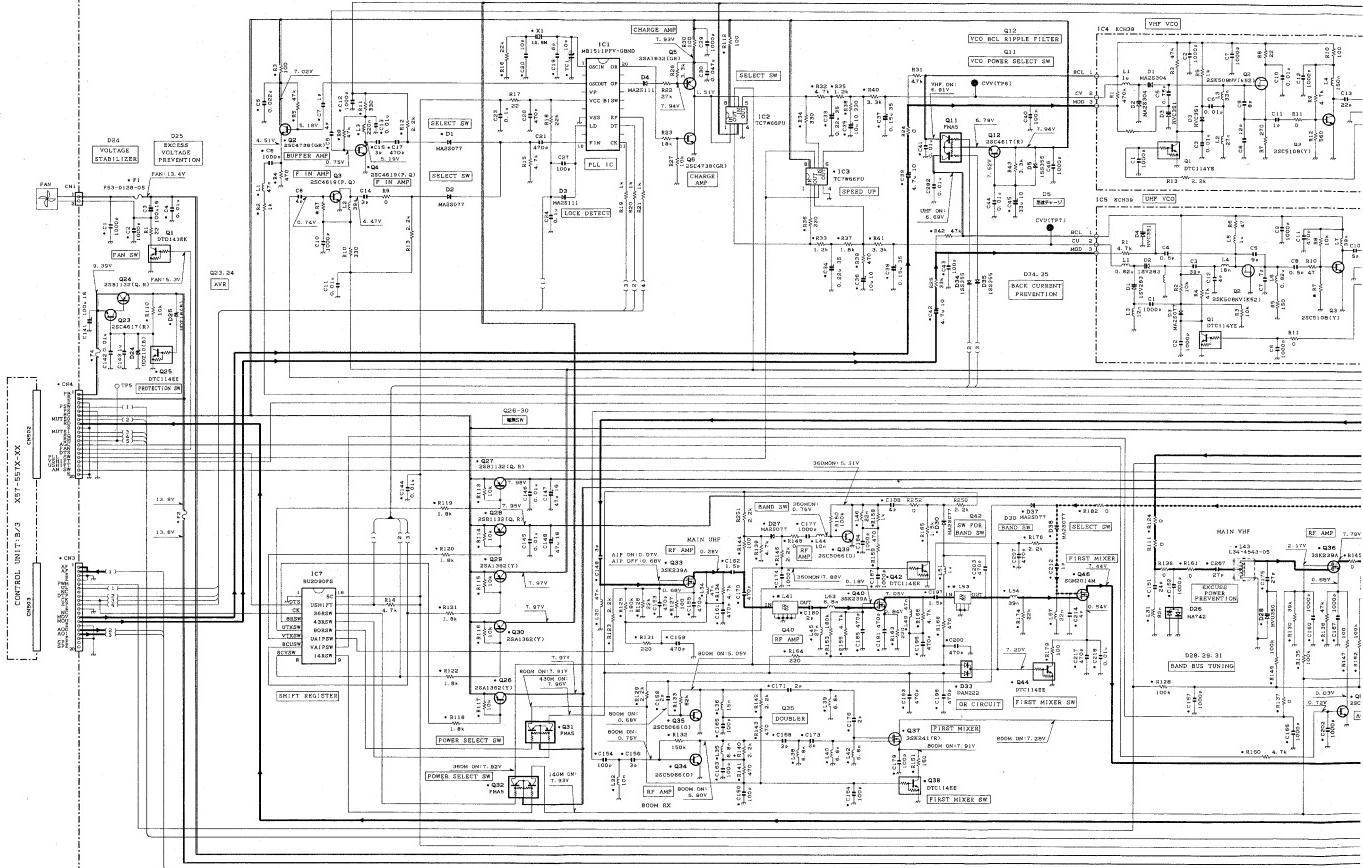
### Receiver Section



Note 1: The 12dB SINAD levels were plotted using a standard signal generator through a  $0.01\mu\text{F}$  ceramic capacitor at each point from the RF to the first IF.

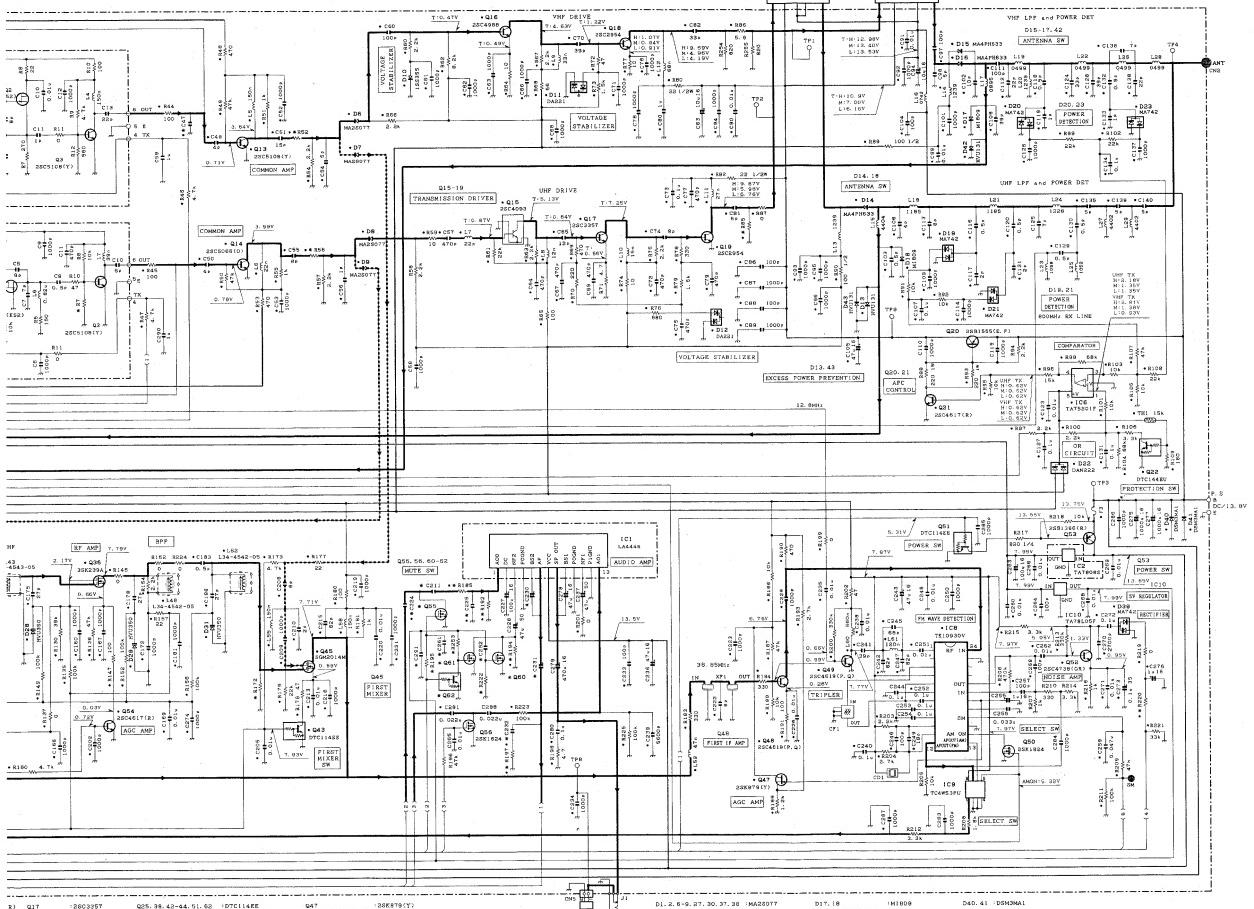
Note 2: The AF levels were measured with an AF voltmeter when the -73dBm (50 $\mu$ V) standard signal generator signal modulated by a 1kHz modulation frequency and a 3kHz deviation was received and the AF output was adjusted to 0.63V/ $8\Omega$  by the AF VR.

X57-557X-XX TX-RX UNIT:A/3



TM-G707A/E

## **CHEMATIC DIAGRAM**

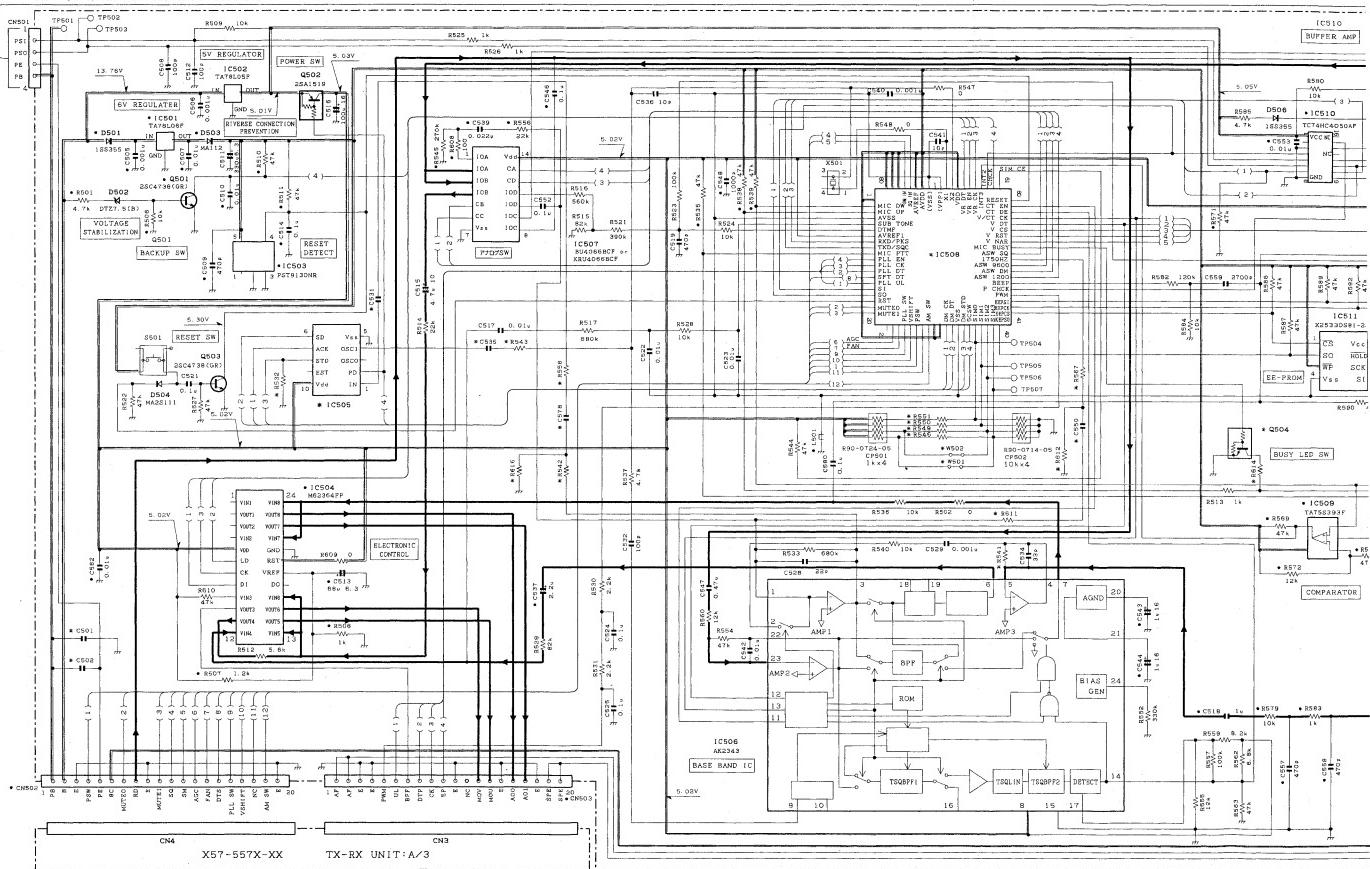


Note) • Ref. No. : Parts of pattern 1

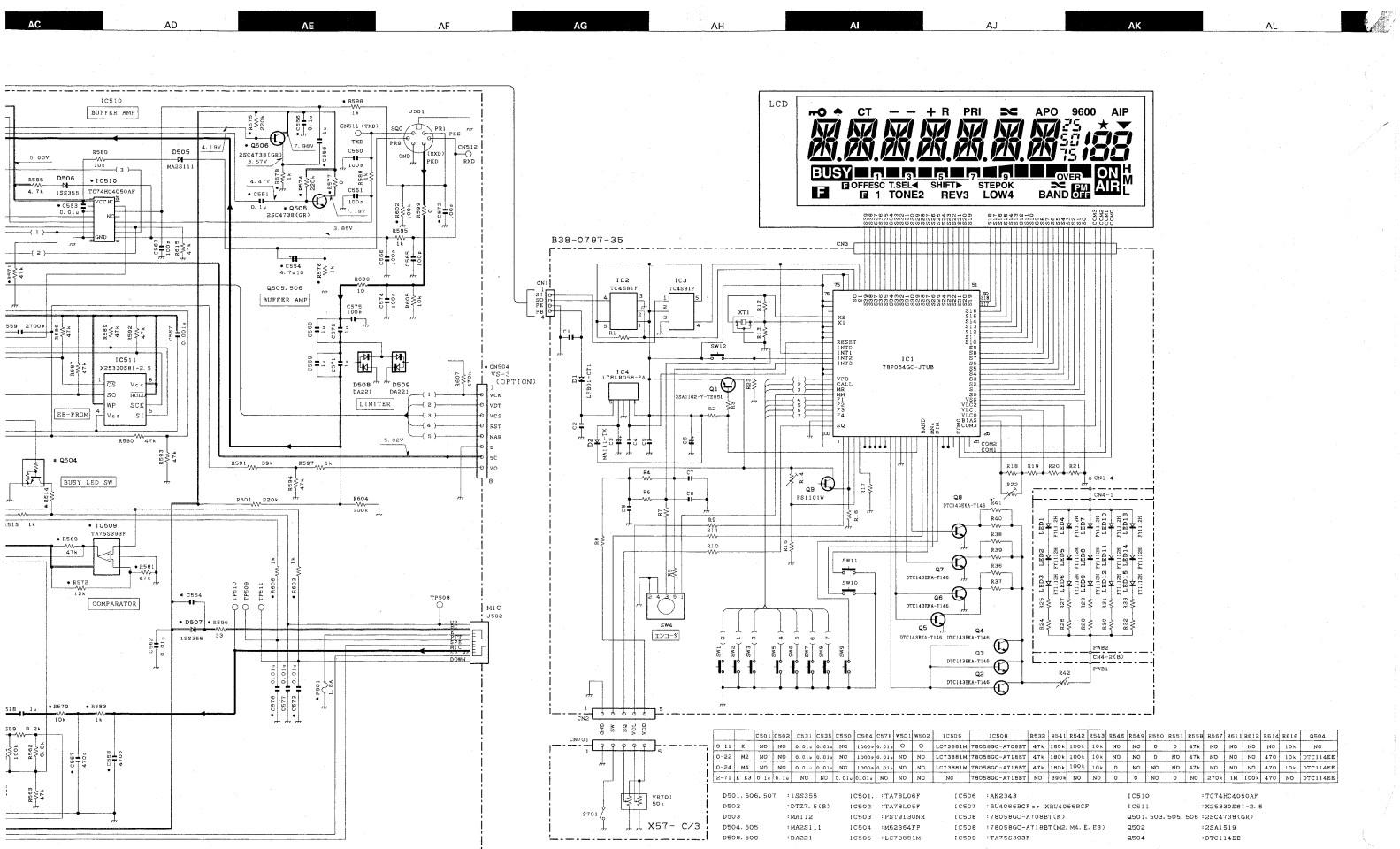
T U V W X Y Z AA AB AC

## TM-G707A/E SCHEMATIC DIAGRAM

X57-557X-XX TX-RX UNIT (CONTROL UNIT): B/3



Note) Ref. No. : Parts of pattern 1.



# TM-G707A/E

## SPECIFICATIONS

Specifications are subject to change without notice due to advancements in technology.

General		VHF Band	UHF Band
Frequency range	U.S.A/Canada	144~148MHz	438~450MHz
	General	144~148MHz <sup>1</sup>	430~440MHz
	Europe	144~146MHz	430~440MHz
Mode		F3E(FM)	
Antenna impedance		50Ω	
Usable temperature range		- 20° C~+60° C(- 4° F~+140° F)	
Power supply		13.8V DC±15% (11.7~15.8V)	
Grounding method		Negative ground	
Current	Transmit (max.)	11.0A or less	10.0A or less
	Receive (at 2W output)	1.0A or less	
Frequency stability (- 10° C~+50° C)		Within±3ppm	
Dimensions (WxHxD projections included)		140x54.5x205.6mm(5.51"x1.57"x7.44")	
Weight		1.2kg/2.6lb	
Transmitter			
Power output	High	50W <sup>2</sup>	35W <sup>2</sup>
	Medium	Approx. 10W	
	Low	Approx. 5W	
Modulation		Reactance	
Spurious emissions		- 60dB or less	
Maximum frequency deviation		±5kHz	
Audio distortion (at 60% modulation)		3% or less	
Microphone impedance		600Ω	
Receiver			
Circuitry		Double conversion	
Intermediate frequency (1st/2nd)		38.85MHz/450kHz	
Sensitivity (12dB SINAD)		0.16µV or less:M,E 0.22µV or less:K	0.16µV or less
Selectivity (- 6dB)		12kHz or more	
Selectivity (- 60dB)		28kHz or less	
Squelch sensitivity		0.1µV or less:M,E 0.11µV or less:K	0.1µV or less
Audio output (8 ohms,5% distortion)		2W or higher	
Audio output impedance		8Ω	

<sup>1</sup>Taiwan : 144 ~ 146MHz

<sup>2</sup>Taiwan : 25W (both bands)

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